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THE EDUCATIONAL ASPECT OF THE CANCER PROBLEM

BY

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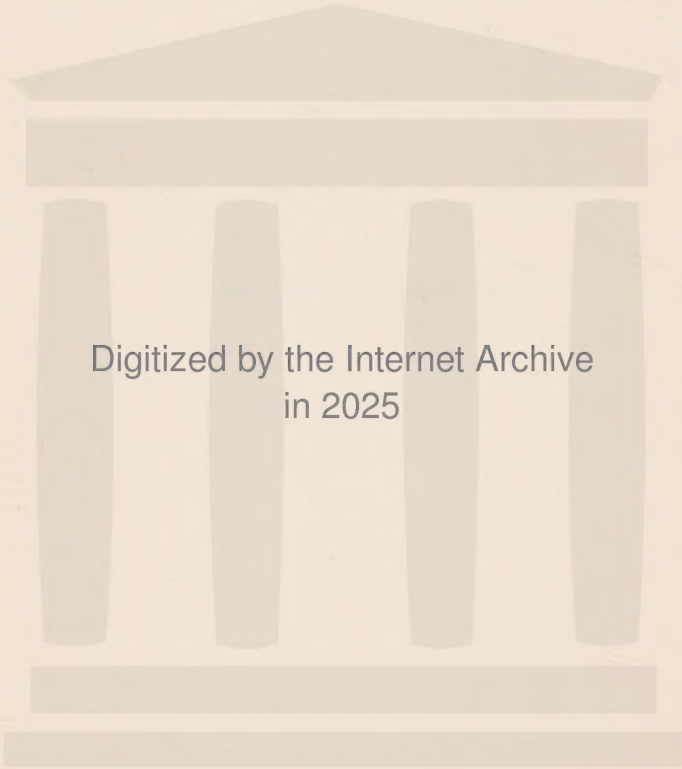

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CHAPTER I

INTRODUCTORY

SINCE the publication in 1906 of my book "The Control of a Scourge, or How Cancer is Curable," which I believe was the first attempt in any country to deal at all generally with the educational aspect of the cancer problem, some water has run under the bridges. Things have happened. The most notable is the foundation of the American Society for the Control of Cancer, which was started in 1913, six years after the publication of my work, and has become one of the most powerful public health agencies in the world. Its policy and procedure, wholeheartedly supported by American professional opinion, are exactly on the lines advocated by me in 1906. As the outcome of this, one civilized country at all events is making, in the interest of its people, a serious attempt to utilize the knowledge, however imperfect, we already possess of cancer; and to diminish thereby that quota of its mortality which is the direct result of the public attitude towards it, and which is traceable to former fallacies

in regard to it that have during the present generation been completely exploded. I allude to the mortality from the disease, occurring in removable situations, which the experience of the present generation has shown could undoubtedly be greatly diminished, were it not for the ignorance and unreasoning fear which exist in the public mind about it. The American Society has as its set purpose the control of cancer from this direction.

Its fine example has not hitherto been followed elsewhere on any large scale, though sporadic attempts have been made in this and other countries to nibble at the subject, and there are not wanting signs that the Ministry of Health, Local Authorities, and the public generally are beginning to stir in the matter. A different atmosphere in regard to cancer is gradually emerging. Twenty years ago when my book was first published cancer was "taboo." Outside the medical profession nobody wanted to discuss it or to know anything about it—not, we may be sure, from any real lack of interest in it, because it was obviously of vital interest, but owing to the widespread conviction that nothing could be done for it, and the consequent adoption of the ostrich-like attitude of ignoring it and its dangers, every member of the community hoping that whatever happened to his neighbour he would not be the unlucky one to be attacked by it.

Now in combating any disease the direction of medical effort lies naturally in the logical sequence of first of all ascertaining the cause and thereon

devising scientific means of prevention or cure. But the history of the advancement of medicine has by no means always followed this Utopian order. Frequently a cure for a disease, more or less certain, has been empirically and sometimes even up to a point scientifically discovered long before the cause was known. For instance, in malaria and syphilis satisfactory remedies were known and employed for many years while complete ignorance prevailed as to their causes. The same thing has happened in the present generation in regard to cancer. Research workers all over the world have been hunting for its cause, but have not yet succeeded in finding it. Meanwhile observation of the disease, which is independent of and falls short of a knowledge of its cause, has told us in unmistakable terms that, whatever its origin, it is at first confined to the part of the body it attacks, and has further shown us the precise methods and routes by which it spreads. And surgeons, by making use of this knowledge in devising the technique of their operations, have proved that in situations where it is removable it is quite possible to cure it. So that although the treatment of cancer in these situations is not scientific in one sense, viz. that all the time we are working in complete ignorance of the cause of the disease we are treating, yet, on the other hand, it is certainly not by any means wholly empirical. For it depends on a knowledge of the *behaviour* of the disease which has been determined by strictly scientific methods. We may be said, therefore, to

be in possession to-day of a partially scientific and wholly practical cure of a disease whose origin we do not know. Our knowledge and experience of it, moreover, have shown us that, owing to its centrifugal spread from an original local focus, the possibility of cure is strictly conditioned by the stage in which the disease is removed. Working on these lines, the logical sequence is to endeavour to secure that people suffering from it in these situations shall come to treatment, or at all events shall have the opportunity of coming, during that stage. Hence a situation arises which leads rationally and inevitably to the educational aspect of the cancer problem. This situation embodies the purpose of the present book.

It has been written in response to a request by the publishers that I should bring out a second edition of my work " The Control of a Scourge," because after many dormant years a renewed inquiry and demand was coming along for it. I may say it is an almost entirely new book. It does not appear under its original title, " The Control of a Scourge," but with that I originally suggested for it, " Cancer and the Public," which was turned down by the publishers through anxiety lest the public would be afraid to read it. They are now not in the least adverse to giving it its original and proper title. This in itself is evidence of a more wholesome public opinion. Twenty years ago the Press, whose business it is to gauge the literary drift of its readers, shrank from the mention even of the word

" cancer." To-day one can hardly pick up a newspaper without seeing it freely mentioned and discussed. The book is, as its name implies, one primarily for the public, or, to be more strictly correct, for that portion of the public which has reached middle age, i.e. the age of cancer. It contains nothing technical in it. Any intelligent layman will have no difficulty in understanding it and following its reasoning and its purport. It is an attempt to show how cancer in many instances could be prevented and, further, how a considerable portion of its mortality could be eliminated. It contains, again, nothing that anybody need be afraid to read about: no horrors or anything to make the flesh creep. It is a reasoned argument to demonstrate by evidence we already possess that numbers of lives could be saved that are now inevitably lost; and to indicate how and with the possession of what knowledge this desirable end could be accomplished. It shows, too, how little and how simple is the knowledge required. Any suspicion of exaggeration has been carefully avoided. There could be no worse folly than to publish as facts what might be held to be nothing more than personal opinions, or to raise hopes that could not be realized. I believe its contents will belie any such criticism. It is, to use the watchword of the American Society for the Control of Cancer, a " message of hope."

Secondly, and no less important, it is a book for the medical profession. If the public is to get any

guidance in this matter, it must necessarily come from the profession and must have its backing. Its members must be the sole judges of whether the position we have arrived at with regard to cancer justifies the standpoint that a time has arrived for taking the public into their confidence and inviting their assistance and co-operation in the saving of their own lives. The profession itself must therefore be convinced first, and an attempt has been made to achieve that end. It cannot, I think, be said that at present as a whole it is sufficiently alive to the situation. Those of its members who are specially interested in the subject are, of course, perfectly well acquainted with the facts set out here ; but there is not sufficient general conviction to impart the necessary " ginger " to get a move on. In the hope of securing this the situation has been fully and impartially considered, and I believe in such a manner as to satisfy the most exacting criticism. No theoretical or unwarrantable assumptions have been made. Every conclusion arrived at has been substantiated by incontrovertible evidence. Again, the medical profession will have to decide not only what and how much information it is justifiable and desirable for the public to have, but the channels through which that information should be distributed. These have been discussed in full, and, according to the views expressed here, Local Authorities and Medical Officers of Health would have an important rôle to play, and their attention is therefore specially directed to the contents of

these pages, in the hope that they may find the requisite guidance therein.

In conclusion, there are one or two matters which should be mentioned. In the first place, I am considering in the following pages only what is known to the medical profession as carcinoma or cancer. There is another species of malignant diseases, termed sarcoma, which attacks different tissues and is just as dangerous to life. But it has not the same definite characteristics in regard to age, situation, method of spread, association with chronic irritation, facilities for early recognition in certain situations, etc., that true cancer possesses. It does not therefore lend itself to anything like the same extent to an educational campaign conducted on definite lines and of a limited character, such as should in my opinion belong to an effort of this kind. It is also far less common than cancer proper, the Registrar-General's returns for England and Wales during 1921 showing 1 death from sarcoma to 14 due to carcinoma. For these reasons it is excluded from the scope of this inquiry.

Secondly, I am only considering here cancer occurring in certain definite situations and its cure by surgical removal, and the arguments and figures quoted are for that method only. As the reader is probably aware, alternative methods of treatment by radium and X-ray therapy have come into prominence of recent years and have their enthusiastic advocates. But, apart from some superficial cancers of the skin, it is generally agreed that

surgical removal wherever it can be hopefully performed is the surest way of coping with this disease, and that these other methods of treatment should be reserved as primary measures for cases which, from their situation or stage of advancement when first seen, cannot be considered hopeful from the standpoint of surgical interference, or in which the latter would entail an abnormal risk to life. In the situations dealt with here they occupy mainly a secondary and auxiliary position. They have definite limitations and definite indications. These will be given in Chapter XII, in which will be pointed out their undoubted value as aids to surgery, as substitutes for surgical removal where the latter is unsuitable, finally in alleviating the sufferings and prolonging the life of cancer-stricken patients. But they cannot be considered as reliable alternative methods in the usual run of operable cases until they have justified themselves by showing equally good final results on the basis of freedom from recurrence after five years. The modern surgical objective is to cure cancer, and it is only by that standard that other methods can be compared and judged. It is necessary to state this frankly, without appearing to depreciate the value of these other methods, because, unless they can and until they have established a claim to be considered rivals of surgical treatment from the point of view of permanent cure, they carry with them an obvious danger in that they are a far more attractive proposition, and naturally make a much stronger appeal

to the public than surgical treatment ever can. For people, in the present state of our knowledge, to try these methods first, in cases suitable for surgical removal, is tantamount to deliberately forfeiting always their best chance, and frequently their only chance, of cure.

Lastly, it is recognized that surgery itself has its limitations in the treatment of cancer, which are set to it mostly by the situation in which the disease occurs. These limitations have been clearly defined here, and no over-statement of the possibilities in this direction has been advanced or indeed is admissible. Nobody will pretend that surgical removal is an ideal method of treating cancer, and surgeons all the world over would welcome some better and wholly different means of dealing with it. This may and probably will eventually come our way. Meanwhile it must be remembered that, left to itself, it is an inevitably fatal disease, and that surgical removal, however crude and objectionable, is the only method we possess of curing it, and that in certain situations and under certain conditions it *can*, as demonstrated in these pages, provide a cure. It behoves the medical profession therefore to use every influence and support every movement which will enable the victims of cancer to avail themselves, at all events, of the opportunity of cure.

CHAPTER II

CANCER THEORIES

THE cause of cancer is unknown. As might have been expected, both in the profession and out of it, there are not wanting theories to account for its origin.

Among these, articles of diet have taken a prominent place. Cancer has been ascribed to over-indulgence in meat-eating, and its greater prevalence in Great Britain as compared with Ireland, where a large proportion of the population live almost exclusively on vegetables, has been cited as an argument in favour of this view. Some have even gone a step further, and have narrowed the origin of its prevalence in this country to the consumption of Australian meat or Canterbury lamb. The suggestion was recently made by the late Sir Frederick Treves that cancer might be attributed to the large quantities of imported preserved meat consumed in this country. This was at once met by the reply that cancer was common enough in Australia, where nothing but fresh meat is eaten.

Again, we find cancer frequently among the Hindus, who are vegetarians, and among the inhabitants of Italy and Norway, who are small meat-eaters. Moreover, the agricultural population who

eat little meat are more prone to this disease than the well-to-do and better-nourished inhabitants of large centres. On this point Roger Williams says, " Vegetarians are not exempt from cancer, for out of 102 cancer patients operated on at the Jeypore Hospital during the period of 1880–88, 61 were vegetarians, and 41 meat-eaters."

There are others who suggest that fish-eating may have something to do with it, and in favour of this supposition it has been pointed out that both in this country and America sailors and fishermen rank high among occupied males in the mortality figures of cancer. Yet the Bretons, who are largely fish-eaters, suffer little from it, and in districts far removed from the sea, where fish can form a very small proportion of the staple diet, the death-rates are frequently high.

Uncooked vegetables, again, have not been exempt from suspicion, and tomatoes especially have taken quite an exalted place in the public mind as the cause of cancer. There is as little evidence in support of this idea as the notion that it might be due to Irish stew or bread and butter.

Salt is another culprit. The argument is something like this.

It starts with the assertion that Jews suffer less from cancer than other members of the community. They don't eat bacon and ham. Others than Jews, among whom cancer is more common, do eat bacon and ham. Therefore cancer is associated in its origin with bacon and ham. Arguments are sup-

plied to show that it is the salt in the bacon and ham which is at the root of the evil, and the law "no salt no cancer" follows as simply and as naturally as the law "no sun no sunshine." Unfortunately for this theory, it has been found that Jews are not less prone to cancer than other people. It therefore falls to the ground. The propounder of it says, "Nothing can be clearer about cancer than the fact that its incidence is connected with diet; and if our various pieces of knowledge bearing upon diet are compared, it will be found that the only constantly present thing is salt." This statement has nothing to support it except the opinion of its author.

Alcohol, in the opinion of others, takes a prominent share in its causation, and beer and cider have been especially singled out for adverse criticism. It has been demonstrated that the Bavarians, who are the largest beer drinkers in the world, show a very high cancer death-rate, and that Lille, where there is a greater consumption of beer than in any city in France, shows the highest percentage of cancer among persons over forty years of age. Whatever be the explanation of these coincidences, with regard to alcohol generally it is known that cancer is prevalent among Mohammedans, who rarely take it, and among women who, as compared with men, indulge little in it. Moreover, the State of Maine, where special temperance legislation has for a long time been in force, does not show a low cancer mortality. In this connection Roger Williams

writes : " The *ensemble* of the facts relating to the life history of mammary[1] cancer patients shows that they have almost invariably led regular, sober, and industrious lives. Persons of drunken and dissolute habits are comparatively seldom affected."

Quite recently a layman, Mr. J. Ellis Barker, has joined the band of theorists and has published a book, entitled " Cancer," in which he claims to have proved that the disease is due to chronic poisoning of various kinds. He states that the whole nation is being forced to live on " devitalized, doped, embalmed, and mummified food," food which has been deprived of its vitamines by various artificial processes, and, in addition, has had various chemical poisons added to it for preservative purposes ; that, further, this food leads to intestinal stasis, more popularly known as chronic constipation, and consequently perpetual auto-intoxication from the bowel. The British nation, in fact, as all civilized nations, is being poisoned by the food it eats, and that this is the cause of cancer.

In his contention he is supported by no less an authority than Sir Arbuthnot Lane, who has written an introductory chapter, and whose views on chronic poisoning due to auto-intoxication from intestinal stasis as a main factor in the production of cancer are well known to medical men, but are not generally endorsed by them. The latter has stated, " In every case in which I have had an opportunity of verifying it, I have found that the cancer patient

[1] i.e. cancer of the breast.

was suffering from intestinal stasis, and that the infection by cancer was an indirect consequence of this condition."[1]

According to these writers, the primitive savage empties his bowels several times a day: civilized man as a habit only once, if that. Consequently almost every civilized person is suffering more or less from intestinal stasis. Also every civilized person eats preserved foods, and foods to which preservatives have been added. These two factors are therefore universal amongst all civilized countries. Cancer, though not, fortunately, universal, is a very common disease. It must be obvious, therefore, that there can be no great difficulty in collecting evidence which purports to associate the disease with these two causes. In the same way it could be argued, and has been argued, that cancer is caused by worry and anxiety, by alcohol, salt, low-lying districts, mountainous districts, etc., etc., and abundance of evidence has been forthcoming in support of these various theories.

However important it may be for civilized people to eat more natural foods and to avoid chronic constipation, to which I have drawn attention in my remarks on the prevention of cancer of the bowel, Mr. Barker has certainly not proved that these are the cause of cancer, though in a disease whose cause is unknown he is, of course, like many

[1] Inaugural address on Chronic Intestinal Stasis and Cancer, delivered to the Physical Society at Guy's Hospital on October 18th, 1923.

other eminent men before him, entitled to his opinion and to adduce any evidence he can collect in support of it. Nevertheless it is only an opinion.

It is a somewhat remarkable fact, if the constitutions of the whole nation are during the present generation being undermined by these agencies and are being daily poisoned by "devitalized, doped, embalmed, and mummified foods," that during the same period the expectation of life has, it is calculated, increased by something like 10 years,[1] and that in 1912 the cost of Government annuities was raised by 5 to 6 per cent. It is also noteworthy that cancer has been a very prevalent disease, though probably not so prevalent as at the present time, through all the centuries, long before these preservatives were ever heard of and when man was not living at all under the same civilized conditions as exist to-day. It is, again, probable that the primitive savage, living on all sorts of rough and irritating foods, normally needs two or three evacuations of the bowels in 24 hours; whereas the requirements of civilized man, eating more digestible food, and food consequently leaving less residue, are normally met by one. It is, further, a fact that a disease apparently identical with cancer pervades the whole vertebrate kingdom, including fishes. Mr. Barker makes a great point of the fact that

[1] This is no doubt one of the reasons of the increased mortality from cancer. The disease is ever on the increase with advancing years. As people nowadays live longer there are more people to get cancer.

vitamine starvation, owing to vitamines being removed from our food in various ways during its artificial preparation, is a potent factor in the production of cancer. Yet Dr. Cramer, of the Imperial Cancer Research Fund, has shown that when put to the test of direct experiment no degree of vitamined deficiency compatible with life has any effect on malignant growth.

Mr. Barker draws a lurid picture of himself in an advanced pre-cancerous condition, and of his having "miraculously escaped the disease through a timely change in his habits of life." While recognizing from his own description that, owing to indulgence in unsuitable food, lack of exercise, and aggravated chronic constipation, he had got himself into a bad state of health and was, in fact, suffering no doubt from auto-intoxication, and while congratulating him on having attained to better health through a more reasonable mode of living, no medical man reading his description of himself would recognize in it a pre-cancerous condition or anything bearing the remotest resemblance to it. As a matter of fact, most people when seen with early cancer are to all appearances perfectly well and express themselves as feeling so. Many will say that previously to being attacked by the disease they had never known a day's illness in their lives ; and, unless one normal evacuation a day is to be considered intestinal stasis, in which case practically every one is suffering from it, the cancer patient suffers no more from this complaint than his neighbour who has not got it.

It is necessary to state these facts quite plainly, because there is an abundance of loose speculation and loose reasoning in this book, and while it probably would benefit civilized people to eat food in its more natural state, and would certainly benefit those who need it to overcome the very injurious habit of constipation, the prophecy that cancer would be eliminated thereby is pure speculation.

Innumerable other articles of food or luxury have been accused from time to time of producing cancer. It may be safely asserted that not one of them has been proved to have the remotest connection with its origin. Inasmuch, therefore, as nothing whatever is known of the origin of cancer from any particular diet, there is no object in people dieting themselves with the view of securing immunity from this disease thereby. If they do so, they are, for any evidence to the contrary, just as likely to be taking the wrong thing as the right, or omitting the right thing as the wrong. To quote from the report of the Imperial Cancer Research Fund on the Statistical Investigation of Cancer: "As was to be expected from the facts already made known in the first scientific report concerning the distribution of cancer in animals, diet exerts no primary influence on the occurrence of cancer in various races of mankind. Just as cancer is found in carnivorous and herbivorous animals, as well as in those subsisting on a mixed diet, so also races whose diet is similarly restricted are all found to suffer from cancer."

An attempt to associate the disease with certain conditions of locality and climate has been a favourite theme with others. Mr. Havilland, after a careful investigation of the distribution of cancer in England and Wales, came to the conclusion that the districts in which the disease was most prevalent were " seasonally flooded areas traversed by, or in close propinquity to, fully formed rivers." In support of this view the Thames Valley, the valley of the Danube, and a great part of the valleys of the Rhine and Elbe have been quoted as favourite haunts of cancer. Yet, strange to say, the valleys of the Severn and Loire do not show a high cancer mortality, and the department of the Bouches du Rhone is one of the lowest on the list. Mr. Havilland was further of opinion that geographically these districts of high cancer incidence were characterized by alluvial and clayey soils. That a high cancer death-rate is found among the inhabitants of the alluvial soil of Holland and the clays of Cambridge and Sussex is true. Yet equally high death-rates exist among those living on the igneous rocks of Cumberland and North Wales, on the carboniferous strata of Bohemia, and on the palæozoic rocks of Norway. Low-lying districts have, again, been supposed by some to form the most congenial soil for cancer, and the flat country of Holland and Cambridgeshire may be cited as examples by those who favour this view. On the other hand, those who are convinced that just the opposite is the case, and that hill tops are the

natural haunt of the disease, can find abundant justification for their contention in the fact that the disease is just as prevalent in the hilly country of North Wales, Bavaria, and Baden, and the mountainous districts of Norway and Switzerland.

Trees have not escaped criticism, and the advocates of their influence in the production of cancer have pointed not only to the fact that well-wooded countries are almost constantly the areas of high cancer mortality and that isolated houses surrounded by trees especially harbour the disease, but also to the fact that deforested countries, such as the Canton of Ticino in Switzerland, and Istria and Dalmatia in Austria, are areas of low mortality.

In close connection with low-lying districts and trees as a cause of cancer, others, as might have been expected, have not attributed it to these directly, but to a near relative of these, namely, damp. One author, after an exhaustive analysis of 100 cases of cancer of the breast, states that in 30 per cent there was a well-marked history of exposure to damp in some form or other. He comes to the conclusion that women should not reside in places with a damp climate, or where mists and fogs prevail. This advice, if taken seriously, would no doubt be one way of getting rid of the disease in this situation by an emigration of the greater portion of the female population of the British Isles. Lastly, cancer has been supposed to be a disease of temperate climates, yet it has been proved to exist alike in the Arctic regions and in the tropics.

Inquiry conducted in the Middlesex Hospital laboratories with the view of comparing the incidence of cancer in Iceland, Lahore, and at the Middlesex Hospital, though it is admitted that the conclusions cannot be accepted without reserve, seems to show that the most usual sites of cancer vary with different climates. To quote from their report :

" At Lahore, cancer of the male generative organs and skin and lower alimentary tract, including primary disease of the liver, are of outstanding frequency ; whereas at the Middlesex Hospital the seats mentioned are but rarely affected with primary cancer. On the other hand, uterine and mammary cancer appear to be much rarer in Iceland than in England, or even in Lahore ; while cancer of the stomach, which is very infrequent in Lahore, and at the Middlesex Hospital has been far less frequently admitted than cancer of the uterus or breast, and somewhat less frequently than cancer of the rectum or lip, is the commonest seat of the disease in Iceland. So also in Lahore it is the lower part of the alimentary tract which is more commonly affected by cancer ; at the Middlesex Hospital it has been the upper part."

A similar conclusion is warranted with regard to the origin of cancer from conditions of locality and climate as from dietary conditions. Nothing is really known about either. Those, therefore, who would avoid cancer by choosing any particular locality or climate are as likely to choose the wrong

one as the right. To quote again from the scientific reports on the investigations of the Imperial Cancer Research Fund :

" In a previous report, attention was drawn to the extensive new growths in the vertebrate kingdom. The conclusion was drawn that the great diversity of the habitat, food, and conditions of life generally under which malignant new growths occur relegated the study of geographical distribution, climate, soil, and other external factors to a subsidiary position in determining the incidence of cancer in mankind."

No theories that I am aware of have been formulated in regard to occupation as a cause of cancer. The following comparative mortality returns, emanating from the Registrar-General, show that no occupation is exempt from it, just as no climate or locality is exempt from it, but do not suggest any conclusion as to its origin being dependent upon occupation or habits of life. All occupied males, 44 ; all unoccupied males, 96 ; grocers, 34 ; clergy, 35 ; potters, 35 ; coal-miners, 36 ; farmers, 36 ; fishmongers, 42 ; medical practitioners, 43 ; blacksmiths, 45 ; fishermen, 46 ; porters, 48 ; general labourers, 48 ; drapers, 49 ; shoemakers, 50 ; dock and wharf labourers, 51 ; tobacconists, 51 ; plumbers, 53 ; inn-keepers, 53 ; coal-heavers, 56 ; butchers, 57 ; coachmen and grooms, 58 ; tool and scissors-makers, 58 ; gas-workers, 59 ; lawyers, 60 ; merchant seamen, 60 ; maltsters, 61 ; commercial travellers, 63 ; inn and hotel servants, 65 ;

brewers, 70 ; inn-keepers in London, 70 ; chimney-sweeps, 156. An examination of these figures apparently proves cancer to be very haphazard in the selection of its victims, except in the case of chimney-sweeps, who, it will be seen, more than double any other class. This exception has generally been considered evidence of one of the facts about cancer, which will be mentioned in the next chapter, namely, that it is connected in its origin somehow with local irritation of various kinds, soot and dirt being the *fons et origo mali* in this instance.[1] Apart from this exception, the figures apparently leave us in the dark. For instance, we find clergy sandwiched in between grocers and potters, medical practitioners between fishmongers and blacksmiths, lawyers between gas-workers and merchant seamen, and so on. The tables seem to show that it is more a matter of chance than anything else, and that occupation has nothing to do with it.

In the opinion of some observers, worry and anxiety occupy a very prominent rôle in the causation of cancer. Men of great weight in the medical profession have stoutly supported this view, while others have as stoutly denied it. Both Sir Astley Cooper and Sir James Paget in the last century were powerful advocates of it. Thus Sir James Paget wrote : " The cases are so frequent in which deep anxiety, deferred hope, and disappointment are quickly followed by the growth or increase of cancer,

[1] Since the use of the long brush for sweeping chimneys, chimney-sweep's cancer is disappearing.

that we can hardly doubt that mental depression is a weighty addition to the other influences that favour the development of the cancerous constitution. Nor is it strange that it should be so : it is consistent with the many other facts showing the affinity between cancer and depressed nutrition." Dr. Walshe, writing in 1846, said : " Much has been written on the influence of mental misery, sudden reverses of fortune, and habitual gloominess of temper on the deposition of cancerous matter. It would be vain to deny that facts of a very convincing character in respect of the agency of the mind in the production of the disease are frequently observed. I have myself met with cases in which the connection appeared so clear and decisive that to question its reality would have seemed a struggle against reason." Again, Dr. Snow remarks : " The conclusion is that of all causes of the cancer process in every shape, neurotic agencies are the most powerful ; that of such distress of mind is the one most commonly met with." In the opposite camp Roger Williams writes : " Some authors, following the example of Astley Cooper, have attached great importance to grief, anxiety, and mental distress as causes of cancer, and they have adduced statistics in support of their belief. I am unable to confirm this." The last remark hits the nail on the head. Of all the theories of the origin of cancer, I can imagine none more difficult to prove or disprove than this one. It would seem just as difficult to prove or disprove that it is due to air and sunlight

as to worry and anxiety. The latter are so common in this weary world—

> "But looking back, we see the dreadful train
> Of woes anew, which were we to sustain,
> We should refuse to tread the path again."

and cancer is so common also, that their association in a large percentage of cases is inevitable. To attempt to establish between the two the relationship of cause and effect seems to be a wild-goose chase of the first order. To begin with, what degree of worry and anxiety are we going to adopt as "coming within the meaning of the Act"? Is it to be some great trouble, some great catastrophe in life? If so, to prove the theory, we should have to show, from a comparison of many thousands of cases, that those who had suffered such a misfortune were subsequently attacked in unmistakably greater numbers by cancer than those who had not. Nothing short of this would be worth the paper it was written on. I am not aware that this has ever been attempted. The task, in fact, is an impossible one. And if it were possible, the sources of fallacy are so many that I can conceive of no matter in which statistics would more fitly earn the epithet which has been bestowed upon them of "lies in figures." For example, what is to be the time limit within which, if cancer developed, it should be regarded as the cause? Some people will carry a sorrow or trouble to the grave, others will get over a similar misfortune in a month. At what

period, then, is the operation of the mental influence in the production of cancer to cease? What, again, is to be considered the extent of the trouble constituting a great shock to the nervous system? Some are so fortunately constituted that they endure a great blow with more equanimity than others a trifling reverse. Lastly, are we to include chronic worriers among those who are more liable to cancer than others, people whose whole life is a worry, though they may have nothing in particular to worry about? If so, we are confronted with still greater difficulties. Many of these outwardly appear as other people. They are ashamed of their weakness. They would not own up to being worriers, though the little contrarieties in life are a constant and real torture to them. How are we going to get at the mental equation of these, and satisfy ourselves as to whether they should be included or not in the list?

An example may be given in illustration of the fallacies with which this subject is beset. I asked a woman suffering from cancer of the breast if she had had much trouble. "Oh yes!" she replied at once. I inquired the nature of it. "Well," she said, "I had a bad husband." In reply to a further question she told me she had buried him five years previously. Was the worry and anxiety of her life previous to the death of her husband an operating cause in the onset of her cancer five years afterwards? Or was it the shock caused by his death? Those in favour of this view might contend that either or both were. But I discovered that she had

derived considerable mental repose by the timely removal of the not very desirable object of her affections. Her cancer developed, in fact, during the least anxious period that she had experienced for many years. The whole business teems with such obvious sources of fallacy that it must remain a mere matter of opinion. If, on the other hand, we turn to the list of occupations given in this chapter, and if we allow that some occupations are more harassing, and involve a greater nervous strain than others, we see nothing in the tables to support the supposition that worry and anxiety are causes of cancer. For instance, few will be found to deny that a doctor's is one of the most worrying pursuits imaginable, yet doctors show a much lower cancer mortality than commercial travellers, inn and hotel servants, and brewers. Again, clergymen have their full share—and more than their share—of the cares and troubles of life, yet they come almost lowest on the list of all. Mr. Leaf, in his " Clinical Causes of Cancer of the Breast," points out that in many of these cases where worry and anxiety are present, it is found on closer inquiry that the growth in the breast is the cause of the mental distress, not the reverse. This is probably true.

How comes it, too, that, if mental distress and worry are such potent influences in the causation of cancer, the disease is confined practically to the last half of life, and increases in frequency with every decade in proportion to the number of those living? Putting children out of the question,

trouble and anxiety are not absent from people between 20 and 35. The nervous system is then, too, more impressionable, trouble is more keenly felt, though possibly more buoyantly recovered from. Experience of life with its many struggles and disappointments produces resignation. As people get older troubles are less poignant, produce less acute impressions on the nervous system. Yet cancer is ever on the increase with advancing age. It may be said that as people get older their nervous systems are less able to bear the strain—in other words, the degeneracy of old age comes into play. This leaves us exactly where we were. There are so many factors, so many sources of fallacy, that, as I said before, the theory is impossible to prove or disprove. If any influences depressing to the general health act as predisposing causes of cancer by lowering natural resistance and so preparing the soil, mental distress might reasonably be supposed to be one of them. The fact, however, remains that those who are attacked by cancer generally seem at the time to be quite as well as other people, and many of them are to all appearances in robust health.

Remarkable cases have been quoted in support of the theory that cancer is an infectious or contagious disease, i.e. that, though the nature of the poison has not been discovered, whatever it is, it is communicable from one person to another. These cases require very careful sifting. One may be given here illustrative of the difficulties and of how

easy it is to arrive at erroneous conclusions. Two sisters were found to be suffering simultaneously from cancer of the lower bowel. Inquiry elicited the fact that they had lived in close companionship for many years, occupying the same bedroom all the time, and for most of it the same bed. One had suffered from symptoms for a longer period than the other. Following up the histories of these cases, a year later the remarkable fact was disclosed quite accidentally that a third sister, who had lived apart from the other two, and who had only visited them occasionally, was the subject of the same disease, and in the same region of the body. The first two cases, taken by themselves, might have been cited as a prima facie argument in favour of infection, though obviously an equally explicable assumption was that, as they lived together under identical conditions, and were both exposed to the same influences, a common cause was at work in both. But the advent of the third sister on the scene put a different complexion on the matter. Though the possibility of this one having caught the disease from one of the others was not absolutely excluded, it was extremely unlikely. The three cases taken together lent support rather to the " family disease " theory, to its hereditary nature. Yet only one antecedent case could be traced in the family, and that a doubtful one. The father had died of some disease in this region, though the nature of it could not be ascertained. I merely mention these cases to illustrate how carefully all evidence should be

investigated, and how easy it is to make mistakes. The two first cases seemed to point strongly to a common external cause, or to infection. The third case, discovered quite accidentally a year later, seemed to upset this theory altogether.

If cancer is infectious or contagious, it must be clearly understood that its infective properties are of a very low order. It is not infective in the same sense as diseases which are generally regarded as such. This is proved by the fact that those who are in constant attendance on cancer patients in special hospitals for this disease rarely or never get it. Again, in the many thousands of recorded operations for cancer there is no report of a single case acquired from a patient by a surgeon or nurse. Also, though, in the laboratories of the Imperial Cancer Research Fund, healthy mice have been kept in large numbers in the same cage with those suffering from cancer, no case has yet been recorded of its having been " caught." This, of course, does not prove that it is incommunicable, but it does prove that it is at all events very difficult to communicate from one to another.

The public may, therefore, take it as a fact that the chance is infinitesimal, if indeed it exists at all, of their " catching " the disease from anybody suffering from it with whom they may be brought in contact. They need not have any real cause of alarm on this score. Nevertheless, in the chapter on the prevention of cancer will be found a few simple directions to follow by those who are in

attendance on patients suffering from cancer, or who are about to occupy rooms previously inhabited by a victim of this disease.

Similarly, the existence of "cancer houses" or "cancer villages" is extremely problematical, though plausible evidence to the contrary has been frequently submitted. "Cancer houses," by which are meant certain houses in which a succession of deaths from cancer has occurred, are probably explicable as coincidences (for cancer is a very common disease), added to the fact that they have been houses occupied by a succession of old people, all of an age liable to the disease. Again, "cancer villages," i.e. villages showing an abnormally high cancer mortality, have in some instances been shown to be localities from which the younger people have migrated in search of work, leaving a disproportional number of older people behind, i.e. people of the age liable to cancer. This has been proved to be the case in some of the New England states, notably Vermont and New Hampshire, which have a very high cancer mortality *per se*, but no higher at a given age than at the same age in other parts of the country. Such things as "cancer houses" and "cancer villages," therefore, which have, it must be admitted, a considerable backing of popular belief, have not been proved to be a reality, though their existence cannot perhaps be positively denied.

The theory of heredity in cancer will be dealt with in the following chapter, when discussing its local origin. It need only be stated here that,

though formerly parental transmission was considered an important factor in its origin, the part it plays, if any, has been shown of late years to be open to considerable doubt.

Wealth and conditions of ease have been held by some to favour the onset of cancer, while others have attached more importance to poverty and the struggle for existence. The words of the Latin poet written two thousand years ago are as relevant to cancer as to death :—

> " Pallida Mors æquo pulsat pede pauperum tabernas
> Regumque turres."

Its almost universal prevalence has led some to the belief that there is no single cause for cancer, that a variety of conditions may produce it. The latest advocate of this theory is the eminent American statistician, Dr. Hoffman. In a recent paper, entitled " Cancer and Civilization," read before the Belgian National Cancer Congress (1923), he quotes abundant figures, drawn from his own investigations among the Indian populations of North and South America (Bolivia and Peru), to prove that malignant disease among native races is of extremely rare occurrence. His conclusion is supported by a large amount of additional evidence for primitive peoples throughout the world. The next point he makes is that cancer is extremely common among all civilized peoples, and that the rate is increasing practically everywhere. And he pertinently asks what are the conditions

peculiar to civilized peoples, and absent from primitive races, which are associated with its prevalence and increase in the former, and its almost entire absence or relative infrequency in the latter? He answers the question by pointing to conditions of hypernutrition or malnutrition due to excessive eating and drinking and intestinal stasis, habits of obstructive clothing, habits of excessive smoking, more trying occupations, etc., the accompaniments of civilized life, all of which he believes conduce to the long-continued and chronic irritation which are known to be precursors of cancer in various regions of the body, and any of which, in his opinion, may start the cancer process. On this theory and in his opinion there is no single cause for cancer. For instance, he suggests that obstructive corsets may be the determining factor in developing the necessary irritation to cause cancer of the breast in civilized women, the suitable soil having possibly been provided by other habits of civilized life, such as over-eating, intestinal stasis, etc.; that excessive eating and drinking may act in the same way in starting the cancer process in the stomach or intestines; that excessive smoking may be the final factor in starting cancer of the lip and mouth, etc. This in some respects is a reasonable assumption, but it does not appear to meet one fundamental point. For instance, we may suppose that a civilized woman has persistently through many years partaken of irritating foods, has suffered from intestinal stasis, etc., and has so altered the metabolism of her

body as to produce a soil favourable to the development of the cancer process. We may further suppose that, having produced the favourable conditions, she has persistently for many years irritated her breasts by obstructive corsets, and so furnished the second factor, chronic irritation. Now arises the difficulty. Why, having furnished the constitutional soil, and having persistently irritated both breasts, should the disease invariably occur in one breast and never in both? Again, we may suppose that a man has similarly, owing to civilized living conditions, furnished a soil favourable to the onset of the disease, and that he has further, owing to antecedent syphilis, excessive smoking, and drinking, produced the second necessary factor, viz. a state of chronic inflammation and irritation of his whole tongue which is evident to any expert observer; yet the question requiring an answer is, why should the disease always appear at one single spot in his tongue and practically never in two or more? Examples could be multiplied for all the positions of the body where cancer occurs. For when it first appears it is, with the rarest of exceptions, single, and no theory of its origin will meet the case which does not explain this fact. There must be some other factor that determines it. This is the missing link in its causation. What is it that determines that at some particular spot in the body, and practically always at one spot, the cells of that part in which it occurs begin to multiply and to go on multiplying indefinitely and unceasingly until

the patient's death, thus constituting the disease "cancer"?

Conditions predisposing to cancer may be explicable on Dr. Hoffman's theory, and, so far as it goes, there may be something in it. But the above fact is not explained by it. If the causes of cancer were many and lay in the various conditions of civilized environment, the outlook for combating or preventing it would not be hopeful, involving as it would a revolution in the habits of civilization and a return to the simple life of primitive peoples.

I have alluded in the previous pages to many of the theories which attribute cancer to various factors of environment. It will be observed that they exist, or have existed, in sufficient number to satisfy the most voracious, and in sufficient variety to meet the requirements of the most fastidious. Some of them have been held by men eminent in the scientific world, and much time and ingenuity have been spent in attempting to make the particular theory fit the facts. In view of our ignorance of the cause of cancer, it would be manifestly impossible to maintain that none of the influences mentioned in this chapter has any relation with the origin of cancer. To give one instance. If the disease, after all, should turn out to be a parasite, conditions of soil and climate may in the future be shown to be important factors in this connection, though within the limits of our present knowledge they do not appear to be so. But none of these theories has weathered the test of critical examina-

tion, none of them has established its claim to be regarded as connected casually with cancer. Some of them, on the other hand, are founded on obvious sources of fallacy, which have been pointed out under the various headings.

Besides these, which may be termed popular conceptions of the origin of cancer, various other theories have been advanced from time to time by eminent scientists and have been supported by more or less weight of evidence. The most important of these is the parasitic theory, Cohnheim's embryonic theory, Thiersch's theory, Ribbert's theory, Beatson's theory that cancer is allied to reproductive tissue, and Beard's pre-embryonic or trophoblastic theory. These are designated in most instances by the names of their authors. The discussion of them would be out of place in a book of this nature. It may be stated, however, that none of them accounts satisfactorily for the origin of cancer; that the riddle of its cause has not been solved.

CHAPTER III

CANCER FALLACIES—THE ATTITUDE OF THE PUBLIC

THE various theories of the origin of cancer, discussed in the last chapter, are all, as far as is known, "cancer fallacies." They have obtained more or less acceptance by the public from time to time, have perhaps been fashionable for a season, and have in turn supplanted one another in the public credence. If they have not been productive of any good, they have done no particular harm. I propose in the present chapter to discuss the attitude of the public towards the disease, irrespective of its origin, and to point out the fallacies which exist in the public mind about it. These are productive every day of a great deal of harm and, in fact, mostly lead straight to disaster.

The attitude of the public towards cancer is a veritable topsy-turvydom. It may be described briefly as one of appalling ignorance of its early signs, of hopelessness as to its outcome, of dread, therefore, of the confirmation of a possible suspicion of it. To these are added the idea that the disease carries with it a sort of family stigma, and the fear of the means of dealing with it, viz. surgical operation. All of these notions together have engendered

a secretive disposition on the part of the general public towards it, an unwillingness to discuss it or to know anything about it. Everything in this attitude is just the reverse of what it ought to be. Yet it is very natural. If we inquire into the origin of it, it will be found to be the outcome of the almost universal experience of it, the result of the guise in which the disease is presented to the popular view. The only phase of cancer which is ever presented to the public, and with which it is at all familiar, is the terminal stage of it. If people generally have any idea of what it is like, have any mental picture of it at all, it is that of a long, lingering, painful illness, terminating invariably in death, either after or without operation. They see nothing and they know nothing of the victim of the disease going about apparently in his usual health for perhaps many months, and frequently carrying with him all the time, to his knowledge, unmistakable signs of it. That is a side of the picture which is never presented to them. Yet it is the only knowledge of the disease which can be of any value to them, should one of them unhappily fall a victim to it, because it is the only knowledge which will give them a reasonable chance of saving their lives. That is the position. Whether it is desirable to endeavour to alter it may be a matter of opinion. But there is no hiding the fact that that is the state of things existing to-day.

As a result of this lack of knowledge of the early stage of cancer, the majority of people who get it

die of it, even in those situations where it *can* be cured. This will be demonstrated later. Nevertheless, they do not all die. Even in face of these difficulties there are many hundreds of people going about who have been cured of it. Every surgeon who is in the habit of operating for cancer, and following up his cases, could produce them. Every doctor knows it. But the public does not know it, and why ? If a person has been successfully operated upon for appendicitis or gall-stones, etc., in fact, for almost any complaint but cancer, there is no attempt at concealment of the fact. It is openly talked about and spread abroad : the patient is often proud of it. In cancer it is quite different. If a patient has been operated upon for cancer, is well 5 or 7 years or more afterwards, and is in all probability finally cured, the event is not proclaimed from the housetops. On the contrary, every effort is made to conceal the fact that he or she has ever suffered from the disease. It is considered a stigma to have had cancer in the family. I have been more than once asked by relatives, when signing a death certificate in a case of this disease, if I could not leave out the word " cancer " ; never, so far as I remember, in the case of any other disease. This secretiveness regarding cancer, especially among the more educated portion of the community, is a very dominant fact, and exists to the same extent, I believe, in no other disease. The cures of cancer are never talked about, and are unknown to the general public. They never serve, therefore, as an advertisement or

propaganda of the successful treatment of it. But the case is quite different when anyone dies of cancer, whether operated upon or not. There is a long and painful illness frequently lasting for months. Concealment is impossible. Everybody knows about it, and everybody talks about it. Hence the feeling of the hopelessness of the disease in the public mind, a feeling which is always nursed and propagated by every fatal case, and never or hardly ever relieved or brightened by the knowledge of any case of recovery. This hopelessness about it accounts for many people, if they have a suspicion that they may have cancer, keeping away from the doctor, dreading to have that suspicion confirmed until by its sure advance they are at length inevitably driven to seek advice.

Lastly, as a factor acting adversely in the same direction, is the dread of the remedy likely to be proposed, viz. surgical operation. I do not believe this would have much weight with the public if they were more hopeful of the outcome. People are so used to operations in this surgical age, anæsthesia and the smooth convalescence that follows most modern operations have robbed them of so many of their terrors, that the dread of the actual operation itself does not, I think, *per se* militate much against earlier professional touch with the disease. It is seldom nowadays that people raise obstacles to an operation for any complaint causing them serious inconvenience or ill-health, provided they can be reasonably assured that it will

result in a cure or alleviation of their sufferings. It does of course happen, but not frequently. It is the idea of the hopelessness of the result of the operation, should it be cancer, which is the real deterrent. It is this sort of belief, if a patient suspects he may have cancer, "Well! if it is cancer I shall die of it anyhow; I shall have to undergo an operation; it will come back and I shall have to go through it all again," that keeps him away from the doctor. If people had the belief that it was possible to cure them, the conviction that they had anything like a fair fighting chance against the disease, the actual dread of operation would not be a serious obstacle.

I have briefly sketched above the general attitude of the public towards cancer, and have analysed the reasons of it. The misunderstanding and the consequent missing of its early stage is far the most important fact among all classes. To this is added, especially among more educated people, the belief that cancer carries a family stigma with it, the conviction that it is always a fatal disease, and the dread, therefore, of the confirmation of any suspicion of it.

Lastly, there is the fear among some people that an operation will be the means suggested to them for its relief. I have named these "cancer fallacies." They are so in the sense that they have led to a complete misconception of the disease, and what it is possible to do for it in certain situations, and are very real and very powerful deterrents to its more

successful treatment. They together, in fact, frame an attitude which makes it impossible to secure even a fair measure of success. The result is this. A very large number of the sufferers from it, as will appear later, when they first seek medical advice, have by many months exceeded the time when it is possible to do anything for them at all: another very large number have exceeded the time when it is possible to do anything really hopeful for them. The utmost the medical man expects is to prolong life in these cases. He may hope for a cure, and sometimes gets it. But he does not expect it. These usually take their chance of an operation, and mostly go to form the class of people who are known to the public to have been operated upon, and in whom the disease returns within a variable time, eventually proves fatal, and consequently produces such a hopeless impression of cancer and its treatment.

Lastly, from this chaotic muddle emerge a small minority of people who have been lucky enough to apply in time to have the disease completely removed and are cured. These are the cases, owing to reasons mentioned above, that the public never hears of again. The admitted objective of medical opinion is to bring all the sufferers from cancer, in those situations where it is possible to remove it, into this class, and it is realized that, unless or until this can be done, there is no possible prospect of any substantial increase in the numbers of cures of the disease by our present means of dealing with it.

CHAPTER IV

CANCER FACTS

IT would be foreign to the character and object of this book to discuss from a scientific point of view all that is known, or supposed to be known, about cancer. I am only concerned here with the broad outstanding features of the disease which are admittedly common ground, and such of its characteristics as may point the way to practical results.

It is a disease that has been recognized and described for centuries. To the ancients it was known as a loathsome animal which seized upon the breast and drove its long claws into the surrounding tissues. Hence the name cancer or "crab." It is probable that at a later date it was considered by our forefathers a vegetable, and the terms "fungus" and "fungating" were applied to certain phases of it. It was at one time supposed to be a disease peculiar to man, but a wider acquaintance with it has shown that it pervades the whole of the vertebrate kingdom. It has been found in savage[1] as well as in civilized races, in wild as well

[1] Nevertheless there is good ground for the belief that cancer in man is mainly a disease of civilization, and is increasing with the march of civilization and its habits. For instance, Colonel

as in domesticated animals ; in mice, in fowls, in trout, in codfish, in cows, in dogs, in frogs, in lions, in tigers, in salamanders. Indeed, one of its most remarkable features is its universality, its presence under apparently every conceivable condition, whether of soil, climate, diet, race, occupation, or animal life.

It is not an acute disease. Its clinical course is a leisurely one, giving abundance of time and opportunity to the physician or surgeon for the most meticulous study and investigation of it. In addition to these, the biologist, the pathologist, the histologist, the bio-chemist, the experimentalist, the statistician, the layman, have all had a hand in the search, yet its cause has not yet been revealed.

McCarrison, during an extensive practice of 9 years in the Himalayas, states that he never saw a single case of cancer. Again, Dr. F. L. Hoffman, the eminent American statistician, states that during a sojourn of 7 months among the native Indians and mixed bloods of South America, nothwithstanding constant inquiry and search, no case of the disease came to his knowledge. Dr. F. P. Fouché, during a practice of 6½ years in the Orange Free State, never saw a single case of cancer in a native, although it was frequently met with among the white or European population. The late Sir Henry Stanley, the African explorer, made the same observation regarding the native races in the regions through which he had travelled ; and Dr. Dyce Sharp confirms this regarding Northern Nigeria and Abyssinia. Notwithstanding these and other similar experiences, the greater prevalence of cancer among civilized as compared with primitive races has been called in question, and its apparent scarcity among the latter has been attributed to other factors, such as comparative sparsity of population, alteration of age constitution, want of facilities for accurate diagnosis, etc. It is certainly not absent from uncivilized peoples.

The disease itself, once the process has started (and what starts the process is the mystery), is a continuous self-multiplication, a growing wild, so to speak, of the cells of that part of the body in which it occurs. The cells themselves of cancer appear to be identical with the normal cells of that part of the body in which it occurs. They only differ in their arrangement and in their power of unlimited growth. If, for instance, the disease is in the breast, it is a continued and unlimited growth of the cells characteristic of breast tissue ; if in the intestine or tongue, a similar behaviour on the part of the cells peculiar to those organs, and so on for all varieties of cancer. Whenever it starts it continues to grow without restraint ; to destroy the very tissues that feed it ; and ultimately its host by involving some vital part of the body or in various other ways which it would be out of place to describe here.

I. The first important point to which attention should be drawn, and it is one of vital moment to the community, is the extent of cancer mortality and its increase amongst practically all civilized peoples. In a population of 37,885,242 persons in England and Wales in 1921, a total of 46,022 deaths were certified as cancer. This means that out of each average 1000 persons living, 1·21 died of the disease. The death-rate per 1000 of the population attributed to cancer in England and Wales was in the decade 1851–60, 0·32 ; in the decade 1911–20, 1·12 ; in the year 1921, 1·21. This is no less than

a fourfold increase, and it is a steadily progressive increase, as shown by the figures. In 1904 at the Middlesex and St. George's Hospitals an attempt was made to answer the question, " Is cancer on the increase ? " by inquiring into the ratio borne by deaths from cancer to deaths from non-cancerous diseases over a period of years. The records of both hospitals, though differing in details, showed that cancer had been increasing steadily since the beginning of the nineteenth century in males and was still increasing, but that in females it increased up to about the year 1874, and since that time had remained stationary. During the present year this general view has been confirmed for England and Wales. The inquiry further elicited the fact that the increase affected all the primary sites of the disease, but that a greater increase had taken place in cancer affecting the alimentary tract than elsewhere (cf. " Cancer Research at the Middlesex Hospital, 1900–1924 ").

Attempts have been made to explain this away and to represent it as apparent rather than real. There are two main arguments which have been employed. The first is that, inasmuch as cancer is almost exclusively a disease of the last half of life, and that the prospect of life has increased, more people reach the cancer age, get it, and die of it. The second, that with the advance of medical knowledge there has come improved diagnosis and with it more accurate certification of cause of death. As pointed out by Sir Arthur Newsholme, the number

of certified deaths from indefinite causes is constantly lessening. For instance, the number certified from indefinite causes in 1866–68 was 143,472 per annum. In 1894 it had fallen to 68,650, a diminution of no less than 74,822. Many of these would no doubt come into certificates as "deaths from cancer," so helping to swell its numbers. That this actually takes place has been proved by special inquiry made by the Registrar-General. In 1889, 421 deaths were transferred to cancer. In 1899, no less than 760.

Both of these are weighty arguments, and both of them may modify to a certain extent our present figures. But by no amount of conjuring can they upset them. For instance, as pointed out in a recent circular by the Minister of Health, superficial cancers, such as those of the tongue and female breast, were readily recognizable 60 years ago at the time death occurred, and were probably generally certified as correctly, or almost as correctly, as they are now. Yet in the 20 years, 1901–21, the recorded mortality from the disease in these situations has increased by no less than 39 per cent and 28 per cent respectively. During the same 20 years the recorded mortality from cancer in all regions of the body has increased by 20 per cent, so that the above increased percentages are not due to a shifting of diagnosis, owing to more correct certification, from one region of the body to another, which, moreover, in the localities we are considering would be impossible to any extent. Nor is it due to a transfer of certification from benign to malignant

tumours, for the mortality from tumours not certified as malignant has increased during the same period. It has occurred, too, in spite of the fact that unquestionably, owing to the modern treatment of cancer, a considerable number of lives, small perhaps in proportion to the total, but still appreciable, has been saved. But the general death-rate during this period has fallen by no less than 42 per cent, that from tuberculosis by 38 per cent, and that of most other diseases by substantial figures. There can therefore be no doubt, in spite of the possible sources of error alluded to above, in comparing present day statistics with those of a generation or two back, that cancer is increasing and that it is apparently increasing with disquieting rapidity. Sir George Newman, the chief Medical Officer of the Ministry of Health, says in his last report (1923): " Cancer is the only one of the six principal ' killing diseases ' which is definitely and uniformly increasing. This is the experience of practically all civilized countries."

Dr. F. L. Hoffman, in a recent paper read before the Belgian National Cancer Congress (1923), entitled " Cancer and Civilization," gives remarkable figures in confirmation of this.

After producing evidence that among primitive, so-called uncivilized peoples, typified in the western world by the North and South American Indians, cancer is relatively an infrequent disease, he cites figures to show that it is very common in practically all the civilized countries in the world; that in

some countries—for instance, the United States of America and in Northern Europe—it is increasing at a disquieting rate ; and that it is only in countries such as Italy and Spain, which have suffered from economic deterioration, or in which a comparatively low rate of material prosperity prevails, that the cancer death-rate shows a relatively low figure or a declining tendency. His conclusion, based on a wealth of figures, is that as civilization and its habits advance, so cancer advances ; that mankind's progress in better health and longer life, in better and in more abundant food, in more leisure, in science, in art, and, above all, in medical care, has been accompanied *pari passu* by an increase in this disease. He estimates that the aggregate mortality from malignant disease among the civilized portion of the world's population cannot be much less than, if it does not exceed, half a million deaths per annum.

Perhaps the danger cancer is to the community may be brought most forcibly home to the average reader, unwilling to delve into figures or statistics, by the statement that of people of mature age, or over, about 1 in 7 may be expected to die of cancer. It is so common and so fatal that it is one of the most terrible scourges to which the human race is liable.

II. The second point for consideration is the age incidence of cancer. This is a very definite fact. It is a disease practically confined to the last half of life. From 35 or 40 years onwards is the

cancer age, and the mortality from it steadily increases with each decade. It must be understood that it does occur before this age, occasionally in the quite young. But the instances are so few in number in comparison to the total, that for practical purposes it is true to say that it is a disease which is powerless against the vigorous tissues of youth and young adult life, and attacks only the degenerating tissues of advancing years. Thus, if we take the year 1921 in England and Wales, the mortality from cancer per million population of all persons, both male and female, between the ages of 15 and 45 was 232 ; at 45, 1639 ; at 50, 2627 ; at 55, 3970 ; at 60, 5711 ; at 65, 7889 ; at 70, 8966 ; at 75, 10,945 ; at 80, 11,680 ; at 85 and upwards, 11,621. The broad general truth of the statement that cancer is confined to the last half of life is evident from a perusal of these figures.[1]

III. The third point requiring attention is the association of cancer with chronic irritation or injury to the part of the body in which it occurs. This is a fact which has been clinically familiar for a great many years. A few instances will suffice to demon-

[1] In these statistics sarcoma is included as cancer. But while this book is treating of carcinoma only of the deaths in 1921, those differentiated as sarcoma and cancer respectively were only about as 1 to 14, so that for cancer alone the figures are accurate enough for all practical purposes. In fact, if sarcoma was omitted from these figures, they would still further emphasize the point, because this disease attacks indiscriminately persons of all ages, and of the 232 cases of malignant disease occurring between 15 and 45 years the majority would almost certainly be sarcoma.

strate its significance. A sharp tooth or stump pressing against the side of the tongue will commonly produce a perfectly simple sore or ulcer. If the offending irritant is extracted at once the sore will get well ; but if it is allowed to continue rubbing against and irritating the tongue for weeks or months, cancer frequently supervenes at that spot. Similarly, the repeated local irritation or burn to the lower lip, caused through smoking a clay pipe, will frequently result in cancer starting in that situation. Again, cancer of the neck of the womb, very common in women who have borne children, is unknown among the nulliparous. The injury to the neck of the womb caused by childbirth, and the unhealed tears and fissures frequently left after childbirth, are associated with the development of cancer in that part in later life. The natives of Kashmir are in the habit of wearing a basket containing a small earthenware pan, in which burning charcoal is placed, called a kangri, round their waists, beneath their loose clothing, to keep them warm. This sometimes burns the skin and forms a chronic sore, and on this sore cancer frequently develops. The continued application of X-rays to the skin not infrequently leads to a chronic inflammation of it, with small cracks or sores, and cancer sometimes supervenes on these. Again, cancer of the scrotum among chimney-sweeps, formerly very common in England, followed on the irritation of the skin of that part by the soot and dirt accumulating there in the course of their occupation ; and

a similar form of cancer is found among tar and paraffin workers. Further, in recent years cancer has been experimentally produced in mice by the repeated application of tar to a selected spot in the skin. Whether there is any specific substance in the soot or tar or paraffin which is capable of producing the disease has not been determined. But it would seem probable from the variety of agencies given above, causing chronic irritation and followed in some instances by cancer, that it is the chronic irritation or injury, of whatever nature, which is the factor in the subsequent development of the disease at the seat of that irritation or injury. In fact, a connection between cancer and this circumstance can be traced in most, if not all, the situations of the body in which it occurs. But of the " how " or " why " of this connection nothing is positively known.

IV. The fourth fact—and it is one of the utmost importance—is that *in its beginning it is a local disease*. This is admitted by practically all modern students of it. In the absence of the knowledge of the cause of cancer, it would be unjustifiable to assert this as a fact unless it could be supported by unassailable evidence. I shall presently produce this evidence in as clear and non-technical terms as possible. But before doing so let us inquire what is exactly meant by the statement. It means this : that in its beginning the disease itself is not in the blood or constitution of the patient ; in other words, that, for instance, cancer of the breast is, when it

first attacks its victim, in the breast, and breast only ; cancer of the tongue is in the tongue, and tongue only ; cancer of the womb in the womb, and womb only, and so on. This does not necessarily imply that some people have not in their constitutions a greater natural resistance or immunity to it than others : some a greater proclivity to it than others. They probably have. It is apparently the fact that in many diseases the constitution or soil plays an important part. If, for instance, one considers the infectious diseases which are known to be due to invasion of micro-organisms from without, one finds that some people " catch everything that is going " ; others, although equally exposed, " never catch anything " ; some have a strong natural resistance or immunity to infection, others have very little. To take a particular instance, tuberculosis. The disease is known perfectly well to be due to infection of the body by the tubercle bacillus through the air, food, etc. Now practically all people, certainly all people living in the crowded centres of civilization, are exposed to infection by the tubercle bacillus, and post-mortem examinations show that many, if not most, are actually infected. But the majority have sufficient natural resistance to overcome the infection. In those who have not, the disease makes progress and reveals itself in a definite attack, whether of the lungs, glands, bones, etc. Now the favourable soil for tuberculosis is generally admitted to be hereditary in at all events some instances ; in other words, it is considered that certain

persons inherit a particular vulnerability to it ; and the term scrofula was formerly extensively used to denote the possession by a person of a type of tissue, usually inherited, that has a very low resisting power to tuberculosis, and offers the tubercle bacillus a favourable soil in which to grow and multiply. Scrofula is now held by many to be synonymous with tuberculosis, and the modern tendency has been to minimize the importance of hereditary predisposition, but in the light of clinical observation and statistical study it seems impossible to deny its existence. Then there are many conditions, apart from hereditary predisposition, which produce a soil favourable to the tubercle bacillus. There are, for instance, conditions of environment, especially foul air, bad food, want of sunlight and of outdoor exercise. There are, again, conditions of occupation, those who follow certain occupations especially associated with the constant breathing of dusty air being more liable to tuberculosis than others. The above remarks will serve to illustrate what is meant by a soil or constitution favourable or unfavourable to the development of a disease whose actual *causa causans* we know. It is quite possible that certain conditions, hereditary or acquired, or both, obtain in a similar manner in cancer.

It was formerly believed that heredity played a prominent part in the liability to the disease. Remarkable instances of it running in particular families have been recorded in support of this supposition, of which the late Sir James Paget was

a staunch upholder. The family history of the great Napoleon is a case in point. He, as is well known, died of cancer of the stomach. His father, brother Lucien, and two sisters all succumbed to the same disease. Broca, in his "Traité de Tumeurs," gives a remarkable instance of a like occurrence. A lady died of cancer of the breast. Her four daughters, i.e. in the second generation, all died of cancer; in the third generation, one of these daughters had three unmarried daughters; a second had five daughters and two sons, of whom one of the latter died of this disease. In the fourth generation, one daughter was a victim of the same complaint. In spite of the apparent significance of such instances, of which there are many on record, the importance of heredity has been called in question of late years by eminent authorities, and the rôle it plays has been relegated by many to quite a subordinate position. The subject has been fully discussed in the second report of the Middlesex Hospital Cancer Research Laboratories, by W. T. Hillier and J. Tritsch, in an article entitled "Heredity in Cancer," and numerous statistics have been given. Mr. Karl Pearson's conclusion from these, though it must be admitted that he questions the validity of some of the data on which the deductions are based, is that heredity plays a very unimportant part in the production of the tendency to cancer.

It is possible that the instances quoted above, and many similar ones on record, may be nothing

more than very remarkable coincidences, for cancer is a not uncommon disease ; or that, when the cause of cancer is known, they may be susceptible of some explanation other than that of heredity. That this factor is not now considered to play a prominent part in the predisposition to cancer is evidenced by the fact that Life Assurance Companies, whose business it is to study these matters very closely and estimate their value, attach little, if any, importance to it.

As regards the environment favourable to the onset of cancer, the only fact that seems to have been established is that there is some thing, or that there are some things, in civilized environment which favour its development. Mr. F. L. Hoffman's conclusion, based on a wealth of figures, that cancer marches with civilization, seems incontestable. His theory, " that the various factors in civilized environment which are absent from primitive peoples are conducive to the onset of cancer," is a prima facie reasonable one. But as to whether all such factors are, or if not which of such factors is, accountable for it we are in complete ignorance.[1]

[1] In the view of Sir Arbuthnot Lane, intestinal stasis produced by the diet and habits of civilized races is the all-important environmental factor. This, in his opinion, leads to fouling of the food supply, prolonged poisoning of the various tissues of the body owing to absorption of toxins from the intestinal canal, and so prepares the soil favourable to the growth of the cancer cell. He regards a revolution in the diet and habits of civilized peoples and a return to those of primitive races as the essential conditions of the prevention and control of the disease.

Again, there is evidence that certain conditions in the human organism make for resistance to the onset of the disease. The most manifest of these is the age of the fluids and tissues of the body. Cancer, as has been stated above, cannot at all, or can only with great difficulty, gain a foothold in the vigorous tissues of young and adult life. On the other hand, it readily and progressively attacks the mature and degenerating tissues of middle life and advancing age. There is a something in the virile tissues of young life which is strongly resistant to the onset of the disease. There is a something in the degenerating tissues of advancing age which is favourable to it. As a contrast to this, wholly inexplicable and one of its many paradoxes, when it does attack the young, as happens occasionally, it grows apace and with greater freedom than in older people. Again, it is a matter of common observation that some people of the cancer age when attacked exhibit a marked resistance to it. It makes very slow progress, or tends to become stationary. It remains local and does not spread to other parts of the body. They retain their good health, sometimes for years. All this is contrary to its usual behaviour. Further, there are even apparently authentic cases which have spontaneously recovered, though this is so rare that it may be said never to happen. These facts go to show that in some constitutions, and during some part of life, there is a powerful natural resistance to the disease, and it is possible that many people are entirely immune to it.

Having reviewed roughly what is understood on the one hand by the constitutional proclivity to disease, and on the other by natural resistance or immunity to it, I pass on to the evidence that cancer in its beginning is a local disease, and is confined at first to the part of the body it attacks, whether it be the lip, tongue, breast, womb, etc.

(a) *Clinical Evidence*

Let us examine the clinical testimony first. A patient who applies to a doctor with cancer, provided it is in an early stage, shows no sign whatever of any illness. He expresses himself as feeling perfectly well, and he appears to the trained eye of the doctor to be in his usual health, often in robust health. A woman will seek advice with a lump in the breast, for instance, which is evidently cancer of some duration and is beginning to cause pain or a feeling of ill-health. The doctor asks her how long she has noticed it. She will commonly say, six months or a year. The next question will be, "Why did you not come earlier?" The usual reply is, "As I felt perfectly well, I did not think it could be anything serious." Now, if the poison causing cancer were circulating in the blood prior to its showing itself in the breast, we should naturally expect that there would be some evidence of its presence there, some indication of deterioration in the health of the patient, prior to or simultaneously with its first appearance locally. I do not say

it would certainly be so, but that is what we should anticipate.[1]

But we find, as a matter of fact, nothing of the kind. Just the reverse is the case. It is only after the patient has manifested local evidence of cancer for a considerable time, it is only when the disease is reaching an advanced stage, and there are unmistakable signs of its spreading into various parts of the body from its original site, that the patient begins to feel ill and to show symptoms of failing health.[2] The symptomatic picture, therefore, of cancer is that of a disease at first strictly local and eventually becoming constitutional, not that of a disease of the blood, causing local manifestation of its presence.

A second clinical point in favour of the local origin of cancer is that at its first appearance it is, with the rarest of exceptions, single. Continuing our example of cancer of the breast, it always shows itself as a single tumour or lump in that organ.[3]

If a poison, determining the outbreak of cancer, were coursing in the blood prior to its local mani-

[1] The proofs of the local origin of cancer are cumulative. Each must be given its due weight in determining the conclusion.

[2] In some very rare cases people have cancer for many years without it apparently disturbing their general health.

[3] Thus in an article on " Malignant Diseases of the Breast," from the Middlesex Hospital Reports, it is stated : " Practically the rule may be adopted that carcinoma (cancer) of the breast is of unicentric origin. . . . Not a single indubitable instance of primary cancerous growth originating separately in both breasts, either at the same time, or with an intervening period of immunity from growth, is recorded at the Middlesex Hospital."

festation, we should expect sometimes to meet two, three, or more separate primary appearances of cancer in various parts of the body simultaneously or within short intervals of one another. Nothing of the sort takes place. It shows itself invariably as a single tumour in some particular organ, such as the breast or tongue.

Lastly, in support of the fact that cancer is at first a local disease, we have the clinical fact that it is undoubtedly associated with local irritation. I have explained what is meant by local irritation, and have given examples of it in the lip and tongue (cf. p. 49). Local irritation very frequently, if indeed not invariably, precedes cancer, and the disease begins always at the spot irritated. The rubbing of a sharp tooth against the side of the tongue or cheek, the repeated injury to the lip caused by the stem of a clay pipe, are undoubtedly connected with the outbreak of cancer in those situations, and the disease always starts exactly at the place irritated. It is produced, in fact, on the spot by a cause acting precisely at that spot.

The whole clinical picture of cancer, therefore, is strongly in support of its being in the first instance a local disease, and not a disease of the blood. The fact that its victims remain in good health till the disease is advanced—and we have evidence of its having spread into the body from its original site of origin ; the fact that it is invariably at first single ; the fact that it very frequently, if not in-

variably, is started by local irritation and always exactly at the spot irritated ; all these are, I don't say, absolute proof taken by themselves, but they are evidence of the strongest presumptive character that cancer in the first instance is a local disease.

(b) *Experimental Evidence*

We shall consider, secondly, the experimental evidence of the local origin of cancer.

I am indebted to the reports of the Imperial Cancer Research Fund for the record of the following experiment. It has been found possible to transplant cancer from one animal to another of the same species. This has been successfully done in the case of mice. Small fragments of the growth are sucked up into a hypodermic needle, the needle is then inserted beneath the skin of the mouse into which the growth is to be transplanted, and the fragment is deposited in any situation required. The result is that the transplanted fragment, in cases where the experiment is successful, begins to grow in its new host and develops into a cancer there. This goes through all the phases of the disease in the original mouse, i.e. a malignant tumour or cancer develops at the site of inoculation, and after a while similar tumours spring up in various parts of the body. The mouse, moreover, remains in perfect health for a time, and it is only when there is evidence of the disease having reached an advanced stage—in other words, of having spread into the body from the original growth—that the

animal begins to show signs of failing health, and eventually dies. In these experiments it will be seen there is no question of a constitutional origin of the disease. It is actually grown locally, at the seat of inoculation. From being at first a strictly local disease it gradually invades the body, and it is only when it has done so that the animal begins to show signs of deterioration of health. The disease, in fact, in mice inoculated with cancer, and in which it has clearly and of set purpose a local origin, runs exactly the same course and passes through the same phases as does sporadic cancer in man—the growth of a local tumour first; afterwards other tumours in the immediate neighbourhood, and, later still, in more distant parts of the body: good health at first; only failure of health as the disease reaches an advanced stage; in all its phases reproducing exactly the picture of cancer in man.

Again, in mice, as stated above (p. 51), of recent years cancer has been experimentally produced locally by the repeated application of tar to a selected spot in the skin. If this is the same disease as in man or analogous to it (it runs exactly the same clinical course), these experiments are strongly corroborative evidence of the local origin of cancer in man.[1]

[1] Although these experiments have been successful in producing cancer in mice, they have entirely failed to do so in the case of rats.

(c) *Surgical Evidence*

We proceed lastly to the most convincing of all, the surgical evidence of the local origin of cancer. By a swing of the pendulum, the strongest argument used formerly in support of cancer being a disease of the blood has become our most powerful weapon to destroy this conception of its nature. The great stumbling-block among former generations of medical men to the belief in the local origin of cancer was the fact that, though apparently removed, it invariably recurred. The local tumour could be seen and felt. It was cut out. Yet it always came back. This has been conclusively proved by the evidence of the microscope to have been due to defect in the operation. With the proof of the fact that beyond the visible and tangible tumour, but in its neighbourhood, were cancer cells in abundance, which were neither visible nor tangible, and with the more thorough operation performed by surgeons of late years in consequence of this knowledge, it soon became recognized that the disease in many cases did not return at all. Five, ten, fifteen, twenty years would elapse with no sign of it. The explanation of its formerly always recurring was obvious. The disease had not been removed. Cancer cells had been left behind. These continued to grow and were responsible for the recurrences. The surgical evidence is to my mind conclusive of cancer in its beginning being a local disease. In the following chapters figures will

be given showing the measure of success that has attended modern operations for this disease. Suffice it here to say that as the result of these hundreds of patients, proved to have been the victims of cancer, have lived for many years, have reached old age, or died of other diseases, without any sign whatever of recurrence.

Previously I have given a hint of the nature of the modern operation, which has led to such greatly improved results, which has produced in hundreds of cases this immunity from recurrence that formerly always took place. It is no conjuring trick. It is simply this. It is in some cases an earlier, and in all cases a more perfect local removal; nothing else. Now, if cancer were a disease of the blood, and the appearance of the tumour the local manifestation merely of that disease, to get such a result from a more perfect local removal is inconceivable. Modern operations should give us no better or very little better results than the old. The disease under such a theory should *invariably return*, however early and however thoroughly removed. It does not do so. The irresistible conclusion is that at first it is not a disease of the blood, but a local disease capable of eradication.

I have not given every argument in support of cancer being in its origin a local disease. But I have stated the most striking, the most conclusive, and those which I think my readers will most readily appreciate. I have shown, and I hope I have made the demonstration clear, that from whatever point

of view we regard cancer, whether from its clinical picture, the experimental side, or lastly the surgical aspect, we are driven irresistibly to the conclusion that *in its beginning it is a local disease*.[1]

V. The fifth fact about cancer—and it is quite as important as the last mentioned—is that from its local site of origin it proceeds to disseminate itself centrifugally throughout the body and so destroys its victim. Similar and just as cogent evidence exists of this fact as of its local origin. Let us examine it.

(a) *Clinical Evidence*

It has been stated above that cancer invariably occurs as a single tumour in some particular organ, such as the breast or the tongue. If we follow now its further development we find that it is only after the patient has carried this single tumour for a period, sometimes months, sometimes even for a year or two, that other cancers make their appearance. They make their appearance, moreover, first of all in the immediate neighbourhood of the original growth. After a longer interval they are found at greater distances from it, and still later scattered all over the body. Mr. Sampson Handley, in the third report from the Cancer Research Laboratories of the Middlesex Hospital, draws attention to a case

[1] On this point, Dr. Bashford, the Director of the Imperial Cancer Research Fund, states : " Our observations of animals show that malignant growths are always local in origin, and of themselves produce no evident constitutional disturbances whatever. These facts are in full accord with the cumulative clinical experience in man."

of cancer recorded by Rolleston, which, starting in the left breast, ultimately involved the skin of the whole of the body, except that of the terminations of the four limbs, i.e. in the case of the upper extremities from the middle of the upper arms to the fingers, and in the lower from the middle of the thighs to the toes. The skin in every other part of the body showed cancerous tumours. The same fact was in evidence with regard to the bones. The bones of the forearm and leg, those of the hand and foot, escaped secondary deposits.

It must be explained here what is meant by secondary deposits. I have mentioned previously that the first appearance of cancer is invariably as a single tumour or swelling. After this has existed for some time, it may be weeks or months, or even years, other cancers appear, first in the neighbourhood of the single or original growth, and later on in more distant parts of the body. These are known as secondary deposits. They are called secondary deposits because they are the offspring of the original growth, i.e. they owe their existence to cancer cells which have become detached from the original growth and carried in the circulation to various parts and there deposited. In their new situations they grow and form a cancer exactly like the original tumour. For instance, a man may get cancer in the tongue. This is the primary or original growth. After a while a lump will appear in the neck. This is a secondary deposit.

Reverting now, after this momentary explanation,

to the subject under consideration,—there is in St. Thomas's Hospital Museum a plaster cast of a woman who died of cancer, which originated in the right breast. Almost all the bones of the skeleton showed secondary deposits, but those below the knee and elbow are free from disease. No clinical evidence more striking than this could be found of the centrifugal spread of cancer from its original local site. No doubt, had this unfortunate patient lived long enough, the disease would have eventually involved her arms and legs as well. She died before it reached them.

(b) *Microscopical Evidence*

Let us investigate next the microscopical evidence.

The fact of centrifugal spread of cancer in every direction from the single primary tumour observed clinically has been confirmed microscopically by Mr. Handley. By examining sections of tissue at increasing distances radiating from the original growth, cancer cells were found in smaller and smaller numbers, until a point was reached where none at all were to be seen. The parts of the body in the immediate neighbourhood of the original growth showed abundant cancer cells, those farther away from it fewer, those at a still greater distance none at all. In other words, the cancer had not yet reached the latter.

A second piece of valuable evidence we have from the microscope is this. There are well-recognized varieties of cancer. The disease which attacks the breast, for instance, is of a different variety from

that seen in the intestine ; the latter, again, is of a different variety from that which is found in the tongue. These differences in structure are readily recognized by any expert in the use of the microscope. Now, it is found that the secondary deposits, whether they occur in the neighbourhood of the original growth or disseminated throughout the body, and—a very important point—at whatever interval of time they occur after the discovery of the original growth, reproduce always and exactly the structure of the primary tumour. For example, the structural variety of the secondary deposits in cancer of the breast, wherever and whenever they occur, is always the same as that of the original growth in the breast. So faithfully and so invariably do they agree, that one can have no doubt that these secondary deposits are the offspring of the primary tumour—in other words, the primary local disease was the origin of the spread of the cancer throughout the body.

VI. The sixth point which requires careful investigation is the situations of the body attacked by cancer. If we take the Registrar-General's latest returns of the sites of fatal cancer, viz. those for 1921, and analyse their general significance, we arrive at the following approximate conclusions, and these are in accordance with clinical experience. In 1921, 20,649 males died of cancer in England and Wales, and 25,373 females. In both sexes a very large number occurred in regions of the body more or less inaccessible to hopeful removal, or in regions

in which early symptoms or signs are not definite enough to be likely to lead to early detection. Into this category fall cancer of the pharynx, œsophagus, stomach, liver and gall-bladder, mesentery and peritoneum, intestines (excluding the rectum), lung and pleura, pancreas, kidneys and suprarenal glands, bladder, prostate (in males), brain, other unspecified organs, abdominal cavity (organ unspecified), other and undefined, ovary and fallopian tubes (females).

These situations accounted for 14,463 male deaths and 13,441 female deaths, approximately equal numbers in both sexes. In some of them early operative treatment could, no doubt, and has achieved cures, but on the whole they are situations in which only isolated successes may be expected, either owing to their inaccessibility or the difficulty of their recognition in a sufficiently early stage. This leaves 6186 males and 11,932 females in which death from cancer occurred in other situations.

These situations with their numbers were :—

In Males		In Females	
Lip	265	Lip	26
Tongue	1129	Tongue	96
Mouth and tonsil	595	Mouth and tonsil	81
Jaw	493	Jaw	155
Rectum	2197	Rectum	1649
Breast	33	Breast	4684
Larynx	641	Larynx	138
Penis and scrotum	178	Skin	401
Other skin	541	Uterus	4397
Testis	114	Vagina and vulva	305
Total	6186	Total	11,932

These numbers constitute almost one-third of all cancers occurring in the male and almost one-half of all occurring in the female. They are all situations in which symptoms or signs occur which must early attract the attention of the patient. They are, with few exceptional instances, all situations in which, if advice is sought early, it is possible to eradicate the disease. In other words, in males about one-third of all cancers are capable of cure, and in females about one-half.

If we further analyse these figures and compare them for the two sexes, we find that cancer of the lip and mouth and larynx is very common in men, constituting about one-half of all cases of the disease in these situations, and is very uncommon in women, constituting only about one-twenty-fourth ; that cancer of the rectum is common in both sexes, but is a good deal more common in men than in women ; that cancer of the skin is fairly common in both sexes and more common in men ; that cancer of the generative organs, including the breast, is quite uncommon in men, but very common indeed in women : cancer of the breast and uterus constituting together almost three-quarters of all cases of the disease in women occurring in the situations we are considering. These are the main deductions from the figures, correct enough for practical purposes.

The above figures, it will be noted, are records of deaths from cancer in various regions of the body. Now, in the class first considered, which I have

named the inaccessible regions, comparatively very few cures would be obtained by surgery. Cancer occurring in these situations would be with few exceptions eventually fatal. In these, therefore, the records of the deaths from cancer are a pretty accurate index of the cases actually occurring. In the second class, the accessible regions, on the other hand, which mostly includes those in which surgeons have been successful in curing a fair proportion of cases during recent years, this number, whatever it is, does not come into the recorded deaths from this disease. In this class, therefore, the recorded deaths are not so accurate an index of the cases actually occurring ; they fall appreciably short of them. We are justified in saying, therefore, that in males at least one-third of all cancers, and in females at least one-half, are capable of early removal and of cure.

VII. The seventh and last fact about cancer is that in its early stages it produces no arresting signs of its presence and no symptoms of ill-health whatever. In regions where it can be seen to be in its early stage—for example, in the breast of a woman, or the lip or tongue of a man—there is simply the small growth present and nothing more ; the patient is to all appearances in his usual health, expresses himself as feeling so, and suffers no pain of any kind. It is only when by its continued growth it begins to interfere with the function of a part, or to press on structures in its vicinity, or to break down and cause bleeding and exhausting discharges,

or to become disseminated in parts of the body distant from its local site, that it causes various symptoms dependent on its situation, and interferes with the general health and eventually destroys its victim. Take an example. A woman gets cancer of the womb. All she will notice, as a rule, is slight bleeding occurring at irregular times ; an apparently trivial departure from what she knows to be her normal state of health. She will suffer no pain ; she will feel absolutely well. Such a state of things may go on for months. After a while the bleeding and discharge will increase ; she will begin to suffer pain, she will lose flesh and strength, and present what is known to the medical man as a typical picture of cancer in that region. Or another example. A woman will get cancer of the breast. For months the only thing she will know about it is that she has got a lump in the breast. Nothing more. It is only after she has been conscious of this for months that she will begin to get pain, possibly notice other lumps in the arm-pit, get thinner and feel weak, to present again a typical picture of advanced cancer in that region. The typical picture of cancer, in fact, wherever it occurs, is that of advanced cancer. Early cancer presents no typical or alarming picture at all. The insidiousness of the disease in its early stages is, from the patient's point of view, its chief characteristic.

The above are the seven cardinal facts about cancer as far as we know it to-day. They take no cognizance whatever of the cause of the disease,

which is unknown. They are simply and solely observed, proved, and very definite facts. Let me shortly recapitulate them.

First Fact. The incidence of and mortality from cancer is undoubtedly increasing in all civilized countries.

Second Fact. It is a disease practically confined to the last half of life.

Third Fact. It is almost invariably, if not invariably, preceded by chronic irritation or injury of the part of the body in which it occurs.

Fourth Fact. It is in its beginning a local disease, confined at first to the part of the body it attacks.

Fifth Fact. From its local site of origin it proceeds to disseminate itself centrifugally throughout the body, to become a general disease, and practically always a fatal disease.

Sixth Fact. Approximately one-third of all cancers in males and one-half of all cancers in females occur in situations which must attract the early attention of their victims and are capable of removal and therefore of cure.

Seventh Fact. While it is early it gives rise to no pain and no ill-health. Its presence must therefore be determined by other signs than these.

These facts have been recapitulated at the end of this chapter to rivet attention upon them, for on the inferences to be drawn from them hangs the whole purpose of this book.

CHAPTER V

INFERENCES FROM THE FACTS

I PROPOSE in the present chapter to consider the inferences that are warranted from the seven cardinal facts relating to cancer stated in the last chapter.

Inference from the First Fact

The first point to which attention was drawn is the increasing incidence of the disease in all civilized countries, which is generally admitted. It is becoming each year a greater menace to the community. The public, therefore, can no longer afford to ignore it and to maintain an ostrich-like policy towards it ; nor can the medical profession remain apathetic or indifferent. This has been recently recognized in this country in the launching of the British Empire Cancer Campaign, whose avowed object is, by a great co-ordinated movement of scientific research in all hopeful directions, to unravel the mystery of the causation of cancer. For this purpose funds to the amount of a million pounds, it is estimated, will be required, and an appeal is in progress to the British public to provide this sum. The goal sought is worthy of the endeavour, and the hope is always that the goal will

be reached. At the same time, and without giving way to pessimism which never yet won a battle—indeed, in the expectation that the cause of this disease, like that of many others, will be finally revealed, and the means of preventing or curing it by other and more scientific methods than surgical removal will be discovered—the facts have to be squarely faced that at the moment all endeavour to discover its cause has proved fruitless, that the disease is continuing its ravages almost unchecked, and that surgical methods[1] are the only means we possess of dealing with it now. This being so, if it can be demonstrated that there is some definite factor which blocks the way to the full achievement of surgical effort, that if that factor were eliminated the results would be greatly improved and in some situations many more lives would be saved than is the case at present, and, further, that in others a greater prolongation of life and health before recurrence takes place could be secured than is secured now, then it will be admitted that measures should be taken which will achieve that desirable end, unless it can be shown that such are open to serious or insuperable objection. If the disease destroys, as it does do, 46,000 lives every year in England and Wales alone, and half a million lives annually in the civilized countries of the world, it is with this position we are faced *here and now*. While redoubling, therefore, our efforts all the time to

[1] The alternative methods of radium and X-ray therapy, their limitations and uses, have been set out in Chapter XII, to which the reader is referred.

discover and remove the cause of this appalling mortality, efforts which may or may not secure the desired end, we should in the meantime adopt every reasonable measure within our power to cope with the existing situation.

On the front page of the appeal leaflet lately issued by the British Empire Cancer Campaign occurs a statement made recently by an eminent London surgeon: "The day cannot be very far distant when the cause of cancer will be revealed, and we shall stand on surer ground in fighting it. The fight has been long and arduous, but the victory is in sight." Is it? I would only reply that a remark almost in identical words was made to me by as eminent a London physician exactly 40 years ago. The victory he speaks of cannot be said to be in sight. It has been a long time coming, and may yet be a long time. Meanwhile, short of victory and until victory, there is, as these pages will show, something more to be done *now*.

Inference from the Second Fact

The second fact is that the disease is one, with few exceptions, confined to the last half of life. The most important inference from this is that, in any educational effort to secure better results in the treatment of cancer, people up to 35 or 40 years of age may, and should be, left out of the count. There is no object in teaching any class of people except doctors about any disease to which they are not liable; in fact, there is every reason against it.

There is happily in this disease no occasion to fill the impressionable and imaginative age of youth with any knowledge whatever about a disease they will practically never be called upon to face. We should not, therefore, begin our instruction in the Board Schools or the Public Schools or the Universities. There is no necessity for it. It is when people reach the age of liability to cancer, and not before, that they should begin to know something about it, and even then, as will be shown later, very little. At that age they are more balanced in their judgment, more experienced in and resigned to the realities of life, fit to know things which it might be very undesirable for younger people to be acquainted with and to profit in a judicious manner by that knowledge. The knowledge they should be in possession of will be detailed in a later chapter. The point to make here is that it is only necessary that this knowledge should be imparted to those in middle life and after.

Inference from the Third Fact

The third fact is that cancer is almost invariably, if not invariably, preceded by and in some way dependent upon chronic irritation or injury of the part of the body in which it occurs. The inference from this is that undoubtedly in many cases its onset could be prevented by a knowledge of the sources of irritation which by common consent frequently precede it, and by the avoidance of those factors in its production which such knowledge would render possible. The details in connec-

tion with this matter will be supplied later (cf. Chapter XI).

Inference from the Fourth and Fifth Facts

It will be convenient, in order to draw the warrantable inferences from the premises, to consider the fourth and fifth facts relating to cancer together. The fourth fact is that in its beginning it is a local disease, confined at first to the part of the body it attacks. The cumulative evidence in support of this has been given in the previous chapter. I have there shown that, whatever constitutional predisposing conditions there may be to the onset of cancer, whether hereditary or acquired, as the result of environment (and these conditions if they exist are unknown), the disease itself always appears locally in some particular organ of the body, e.g. the breast, womb, tongue, etc. The fifth fact is that after remaining local for some time, which varies in different regions and in individual cases, it proceeds to disseminate itself from its original local site throughout the body ; further, that this dissemination is strictly centrifugal, i.e. that it occurs first of all in the immediate neighbourhood of the original growth, and, as the disease progresses, farther and farther away from this, till eventually many or all parts of the body may be invaded by it. Two inferences follow from these facts. The first is that every case of cancer occurring in a situation of the body where it is capable of complete removal is curable. No other conclusion

is possible from the premises. An interval exists, be it short or be it long, in every case while it is still local and before dissemination begins during which it is possible to eradicate it and cure it. If this interval is a long one—it may be many months—there is that time and that time only during which it is possible to cure it; if, on the other hand, the interval is short—it may be only a few weeks—there is again that time and that time only when a cure is possible.

The second inference is this, that inasmuch as this interval which exists in every case between cancer being strictly a local disease and becoming a general disease varies in different cases, and that inasmuch as there is no means known to medical science of determining in any given case how soon cancer cells will be detached from the original growth and begin to be disseminated throughout the body, the only security for the victim of the disease lies in the removal of the local growth at the earliest possible moment after its discovery.

A cure is possible by removal, but it is strictly conditioned by the period at which the removal takes place. The significance of these two facts regarding cancer and of the inferences to be drawn from them is obvious. The first carries with it the possibility of cure; the second emphasizes the difficulty of obtaining it. The first gives the patient the chance; the second requires unerring action on his part to profit by that chance. The first points the means to the end; the second proclaims the obstacles to its achievement.

Inference from the Sixth Fact

The difficulties of and obstacles to this achievement are further enhanced by the sixth fact, viz. that during its early stage, while cancer is local and therefore curable, it gives rise to no pain and no ill-health, the two circumstances which usually induce a patient to consult a doctor. Early cancer produces neither. People are far more likely to go to a dentist with an aching tooth than to a doctor with commencing cancer. The former causes pain ; the latter does not. People are far more likely to consult a doctor with some trifling derangement of the stomach than a surgeon with commencing cancer. One produces a feeling of being unwell ; the other does not. The inference from this fact is that the only possible way of insuring that people suffering from cancer shall not miss the opportunity of cure is by educating them in the significance of its early signs in those situations in which it can be satisfactorily removed, and in which the early signs are manifest and are bound to obtrude themselves on the attention of the patient.

Inference from the Seventh Fact

Now, the seventh fact is that approximately one-third of all cancers in males and one-half of all cancers in females fulfil these conditions, viz. that they are capable of removal and that they occur in situations which cannot fail to attract the early notice of their victims. In any campaign of educa-

tion, therefore, it is to these situations that attention should be chiefly, if not entirely, directed. They are mainly the mouth, lip, skin, rectum, and larynx in males; the breast, womb, skin, rectum, and larynx in females. This, as will be seen hereafter, simplifies the task very much, confining as it does the education of the public, and only that section of the public that has reached middle life, to a very few simple facts about cancer, and those only in definite situations where such knowledge is first of all quite easily gained, and, secondly, is certain to be beneficial. It is the limitation and definiteness, both as regards the class of people to be instructed and the instruction to be given, which appears to get over the difficulties and possible objections to a movement in this direction. This will be more fully discussed later.

CHAPTER VI

THE CURABILITY OF CANCER—THE ATTITUDE OF THE PROFESSION

THERE is no longer any question whatever of the curability of cancer in those situations admitting of its complete removal. The present chapter supplies the evidence of it. This lies in the practical fact that it has been cured over and over again. Every operating surgeon who is in the habit of dealing with cancer and following up his cases could, if required, produce instances of patients, proved to have had undoubted cancer, in whom the disease has been removed many years previously and who have lived on free of any trace of recurrence or have died many years afterwards of some other complaint without any return of the disease. Before submitting figures to prove this, I propose to make some general remarks under this heading; to analyse the position, and to indicate exactly where we stand in regard to the cure of cancer by modern surgical methods.

The first noteworthy point is that such a claim can be made at all at the present time and can be substantiated by irrefutable evidence. For one has only to consult the surgical textbooks and records of a generation ago to be convinced of the hopeless-

ness of surgical opinion in this matter at that time. To take cancer of the breast, for instance, which included the majority of cases of this disease submitted to operation until towards the end of the last century. Velpeau, a great surgeon, in his vast experience knew of only 20 patients who had been cured, and he states he was not certain that all of these were suffering from cancer. Sir Benjamin Brodie, after an operative trial of between 500 and 600 cases of cancer in this region, came to the conclusion that life was rather shortened[1] than prolonged by his efforts in this direction, and decided never to remove another breast for cancer without first laying before the patient his experience of its results. Benedict of Breslau, during the last seventeen years of his career as a surgeon, considered the chance of cure so hopeless that he refused to operate on this disease at all. Von Winiwarter, in 1878, publishing Billroth's results, viz. 8 cures in 148 cases, remarks that these were the most favourable statistics that had ever been published. Sir James Paget, in his lectures on Surgical Pathology, states : " I will not say such a thing as cure is impossible, but it is so highly improbable that a hope of this occurring in any single instance cannot be reasonably entertained."

These opinions constitute a reflection of the general verdict of the surgical profession with re-

[1] I have seen this statement quoted recently as an argument against operation for cancer of the breast, without the admission even that it was the experience of the middle of the last century.

gard to the treatment of cancer by operation little more than a generation ago. That verdict would be nowhere endorsed to-day. To put the case at its lowest, there is universal agreement among present-day surgeons that *per se* cancer is not incurable; that, provided it can be removed early, there is not only a possibility but a reasonable chance that the patient will be definitely cured. The difficulties in the way of securing early removal are fully recognized, and it is fully appreciated that these constitute the main obstacle to a higher percentage of cures. But the possibility of cure, and in fact something even more than this, is nowhere disputed. The reason of this reversal of opinion arises, as I have said, from no theoretical considerations, but from the personal and individual experience of surgeons dealing with it. They can deliver the goods. They can produce cases that have been cured. The cases cured prove that it is curable. The small proportion the cures bear to the total prove nothing with regard to its curability. They only emphasize the difficulty of obtaining cures under existing conditions. Though this reversal of surgical opinion arises from actual experience, at the same time the reasons cures are obtained now, which were almost never obtained before, is capable of a ready explanation. It is due to a more thorough local removal following a more accurate knowledge of the direction in which the disease spreads from its original site. This and nothing else is the essential difference between the modern

operation and that of the older surgeons. The latter was merely a removal of the disease as it presented itself to sight and touch, and at a time that it was clearly recognizable clinically. It resulted in an early recurrence in almost every instance owing, it is now known, to the fact that cancer cells in the vicinity of the growth, which it was not possible to see or feel, were left behind and invariably started the disease afresh. This invariable recurrence led, too, as has been pointed out before, to the opinion that cancer was a constitutional disease and that the local growth was merely a manifestation of a systemic disturbance of health. This belief is now exploded. That cancer in its beginning is a local disease is recognized ; the possibility of cure has been established, and the reason of it has been scientifically explained. These facts in themselves constitute a great advance in the treatment of the disease in some situations, and are suggestive of possibilities along certain very definite lines.

When surgeons of the present generation became convinced of the possibility of cure, it was a natural step to endeavour to determine what percentage of cures might be reasonably expected among those operated upon in various operable regions, e.g. the breast, womb, lip, tongue, etc. In endeavouring to estimate this the question arose—after what time a patient who had been operated upon and showed no sign of return might be considered cured ? This no doubt presented some difficulty. It is one of the clinical facts about cancer, wholly unexplained and

probably incapable of explanation until the cause of the disease has been determined, that recurrence may take place at almost any time after removal, i.e. as long as 3, 5, 7, 10, or even more years. Moreover, these recurrences happen in some cases where a priori they might be least expected, and vice versa. The upshot of this is that, although many cases are undoubtedly cured, the surgeon is never justified in any individual case, however favourable, in *promising* a cure beforehand, or again in stating with absolute certainty that a patient has been cured, however long he has gone without a return.[1]

This is the actual position. At the same time, we are not without a guide which leads us to a probable, though not an absolute, conclusion, and which when applied to a series of cases is reasonably accurate. The guide is that the longer a patient after the removal of a cancer goes without recurrence, the less liable he is to recurrence at all, the greater is the chance that he has been definitely cured. An intervening period of 3 years was first investigated by statisticians. In cancer of the breast, Gross, as the result of his inquiries, came

[1] The same attitude holds good in other diseases. For instance, in syphilis, a disease treated by medical means, it is a universal experience that many cases are definitely cured and live to the ordinary term of life without any return. At the same time it is recognized that recurrence may take place at an indefinite number of years after apparent recovery, and for that reason a doctor can neither promise a cure in any individual case, nor state with absolute certainty that a patient who has once had it is finally cured.

to the conclusion that in only 2·3 per cent does cancer of the breast recur after operation, if the patient remains free of the disease for 3 years. Another statistician, Konig, gives the percentage as high as 15, i.e. less than 1 in 6. In the statistical study of cases of cancer of the breast admitted to the Johns Hopkins Hospital from the opening of the hospital in June, 1889, to June, 1902, comprising 222 cases operated upon, whose after histories have been very carefully followed up, in only 7, i.e. 3·1 per cent, did the disease recur in the neighbourhood of the operation wound after 3 years; in no case did it recur in any internal organ of the body after that period. Again, in cancer of the womb, a gynæcological surgeon attached to the staff of the Middlesex Hospital, London, analysing the results of 100 cases of operation for cancer of the womb, gives in all 33 recurrences. Of these, 15 occurred within 2 years, 12 between 2 and 3 years, only 3 between 3 and 4 years, and only 3 between 4 and 5 years, bearing out in this region also the conclusion that very few recurrences take place after 3 years. Further, a distinguished laryngological surgeon attached to the staff of King's College Hospital, London: in 33 cases of intrinsic cancer of the larynx who had survived the operation 3 years or more, in only 3 or 9 per cent did recurrence take place at that time or later. Similar investigations have been made in regard to other regions of the body, with the result that in the early part of the present century what is known as the

three-year limit was adopted by surgeons in estimating the percentage of cures after operation, i.e. no case was considered a cure that had not passed the term of 3 years without recurrence. Subsequent experience showed that this limit was not rigid enough,[1] and it is now generally fixed at 5 years in order to enhance the accuracy. It must be clearly understood that any limit is a purely arbitrary one. The limit of 5 years leads to approximate but not to absolute accuracy.

While, therefore, in endeavouring for statistical and other purposes to ascertain the percentage of *probable* cures, some limit of time must be fixed beyond which, if no recurrence takes place, the case is to be considered a cure (and this limit is now generally fixed at 5 years), the true position is more accurately covered by the following statement. If a patient operated upon for cancer has no sign of recurrence after 3 years, he is *probably* cured, the chances are distinctly in his favour that he will never have any return of the disease ; if now he goes another 2 years without recurrence, i.e. up to 5 years from the time of his operation, he is *very probably* cured ; if he goes a further 2 years, i.e. up to 7 years, he is *almost certainly* cured.

The modern operative treatment of cancer has effected two things. It has first undoubtedly cured for good numbers of people suffering from cancer

[1] Cf. records of the after histories in operations for cancer of the breast, womb, and larynx just mentioned, in which some recurrences occurred after 3 years.

who would have died without it or under the older methods of treatment ; secondly, in those cases in which it has failed to cure it has unquestionably prolonged the period of freedom from recurrence and has alleviated much suffering. These are no mean triumphs in themselves. That far greater triumphs over this disease await an alteration in existing conditions will be demonstrated in the following pages.

I propose now to submit evidence of the curability of cancer in those situations in which it is possible to remove it. I may say, in passing, it is exceedingly difficult to procure comprehensive statistics in regard to these matters, and the material on which to base our conclusions, though accurate enough, is limited in amount. It is both a difficult and expensive matter to follow up for years the after histories in any disease. Patients themselves are often not very helpful, and, though ready enough to promise to report themselves when under the influence of the first emotions of gratitude that flow from a riddance of their disease, frequently fail to do so regularly as years go on. An elaborate " follow up " system has to be adopted to keep in touch with them, and neither the doctor nor the institution frequently have the time or the money to maintain this over a number of years. Liberal statistics are very much required on the following points. We first of all want to know what percentage of cases in different regions is inoperable when they first apply. This will obviously be a

variable quantity, for the following reason. There are bound to be some cases on the borderland which one surgeon would consider in his judgment inoperable, while another, possibly of a bolder temperament, would consider the reverse. Still, if the figures were worked out for a large number of cases, say at one or several large hospitals, these discrepancies would tend to counterbalance one another, and a conclusion approximate enough for practical purposes could be arrived at. Having attained this, a separation of early from more advanced cases is of the first importance, and the percentage of " probable cures " in each class determined separately. Here again borderland cases would occur. A case which one surgeon would consider should come into the early class, another might place in the more advanced. These differences, as in the former instance, would counterbalance one another over a large number, and again approximate conclusions could be arrived at. The chief factors determining an early case would be the length of time it had existed plus the clinical signs the disease manifested. This is an entirely technical matter, and its discussion would be out of place here. If removal at the early stage is the condition governing cure in cancer, it is absurd to mix advanced cancer, which may still be operable, with early cancer in endeavouring to determine the measure of cure by operation. The results obtained by such a method are no criterion whatever of the results obtainable. With the view of endeavouring

to gain information on these points, I wrote to several well-known institutions, such, for instance, as the Cancer Research Laboratory of the Middlesex Hospital, St. Bartholomew's Hospital, the Cancer Hospital, Fulham Road, London, Leeds General Infirmary, the Mayo Clinic, Rochester, U.S.A., the Johns Hopkins University, Baltimore, U.S.A., etc., etc. It is only from the two last named that I have been able to obtain any comprehensive evidence. I have therefore been obliged to content myself in many instances with the records of individual well-known surgeons dealing with cancer in particular localities, e.g. the breast, womb, tongue, rectum, larynx, etc., which have appeared from time to time in the medical journals or have been kindly supplied to me privately. I do not propose to give the names of the various surgeons who have furnished me with these data, though their origin in nearly every instance has been indicated. In a book which is intended for the public, my reasons for this will be readily understood. The publication of names would have the obvious objection of serving as an undesirable advertisement. The sources, however, from which these records are derived sufficiently indicate that they are all men at the top of the medical profession, both at home and abroad, on the staffs of some of the best medical schools and hospitals in the world, men whose ability has been proved and whose honesty is unquestioned.

In speaking of cure, without any qualifying particulars, it will be understood that the 5 years'

limit without recurrence is taken as the basis. This is not absolute, and cannot be, for reasons given above, and "probable cure" will therefore be understood. But wherever possible the actual number of years each patient survived the operation will be given; or, if dead, what he died of and how long after operation. From this a judgment of the curability of cancer will be possible, quite apart from any time limit at all.

Before submitting the figures an important point requires explanation and must be thoroughly understood. All of the cases given in these tables were operable, i.e. the disease had not advanced so far as to make it in the judgment of the surgeon impossible to remove it. When a patient applies with cancer in a removable situation, if the surgeon considers he has a reasonable chance of getting rid of the whole disease he advises operation, and the case is considered an operable one; if not, he advises against operation, and the case is considered inoperable. Technical considerations, which do not belong to a book of this sort, guide the surgeon in coming to a conclusion one way or the other. All of the cases quoted here were considered by the surgeons under whose care they came operable, and were in fact operated upon. But numbers of others would have during the same period been rejected as inoperable. So that the percentage of cures here quoted does not mean that of all cases coming to the surgeon's notice during a given period, but the percentage only of those who were considered oper-

able. An example will make the point clear. Under cancer of the womb there is a record of 237 operations with a percentage of cures 38. This does not mean that of 237 consecutive cases of cancer of the womb the surgeon obtained 38 per cent of cures, but of 237 consecutive *operable* cases, a very different thing. For every operable case he would be obliged to refuse others who when they first applied were too advanced for operation at all.

The evidence submitted covers two points. First of all, statistics are given for each region, showing the percentage of cures that have been obtained in operable cases without reference to whether they are early and therefore specially favourable cases or not. They are just cases of cancer such as the surgeon usually sees and considers operable. They are, of course, earlier than the inoperable cases, but are not favourable cases specially selected with the object of showing good results. Far the majority of statistics dealing with the result of operation for cancer have been compiled on these lines. Thus the first surgeon whose statistics of operation for cancer of the breast are given, writes: "Before going into the figures, I may here state that in determining the cases to be operated on, I make no selection from the point of view of getting good statistics. Hopeless cases have naturally been refused operation. That is to say, cases where from the local distribution of the disease it was clearly impossible to remove it, or where internal deposits were undoubtedly present. But where there has

seemed any chance of removing the disease, even though only a very poor one, the patient has been given the benefit of the doubt. . . . I have no doubt that had I aimed at getting the best statistical results and selected the cases from that point of view, a decidedly better percentage would have been obtained ; but I do not think that such a selection is fair to a patient suffering from such an inevitably fatal disease as cancer of the breast," etc. The second surgeon writes in his report : " There has been no attempt to select favourable cases, only those cases being rejected where it was manifestly mechanically impossible to remove the disease with the knife. The results may, therefore, be said to give us an idea of what we may expect to accomplish under the usual conditions of surgical practice." This fairly represents the attitude of the surgeon towards cancer, and may be taken as the spirit in which these statistics were compiled. They are the results of operation for cancer as it presents itself to the surgeon to-day.

But I have already directed attention to the fact that statistics submitted on these lines, while indicating the amount of success that may be expected in cancer as it is usually presented to the surgeon, are no measure of that which it is possible to obtain. To get at this the cases must be differentiated into possible operable and early operable, the latter *only* indicating the maximum of success obtainable under existing conditions. Wherever possible this, the second point with which the evidence deals, has

been done, and the striking difference in the result has been emphasized, and the reader's attention is especially directed to it. It has not been possible to make this differentiation in every instance, for the simple reason that statistics on these lines are not yet available for all regions. But the evidence submitted is amply sufficient to cover the point under consideration, and there is no doubt that when these statistics have been completely worked out they will show a similar result for all operable situations of cancer.

(a) *Cancer of the Breast*

A surgeon gives a record of 34 cases, all of whom were private patients, and all of whom, with one exception, he has been able to trace for periods ranging from 6 to 13 years from the time of operation. They show the gratifying result of 17 or 50 per cent alive and well and without recurrence at periods varying from 6 to 13 years.

A second surgeon gives an analysis of 100 consecutive cases—of these 17 are alive and well and without recurrence 5 years or more after operation. They are as follows :—

1	alive and well		20	years	after operation.
1	,,	,,	19	,,	,,
1	,,	,,	18	,,	,,
1	,,	,,	14	,,	,,
1	,,	,,	11	,,	,,
2	,,	,,	10	,,	,,
2	,,	,,	8	,,	,,
3	,,	,,	7	,,	,,
5	,,	,,	5	,,	,,

Six have died of other diseases more than 5 years after operation, and without in the meantime having had any recurrence. They are :—

1	died of	hæmorrhage of the lungs	14	years	after operation.
1	„	grippe	13	„	„
1	„	apoplexy	10	„	„
1	„	inflammation of the lungs	10	„	„
1	„	apoplexy	8	„	„
1	„	cholera	6	„	„

We see from this table that there are in all 23 cases, or nearly a quarter, which have had no recurrence. They are either alive and well more than 5 years after removal of their cancers, many of them as the table shows at far longer periods than 5 years, or else they have died of other diseases more than 5 years after operation, many of them, again, at much longer periods than 5 years, and having, prior to their deaths, shown no evidence whatever of recurrence.

A third surgeon gives a record of 46 cases. Of these, 13 are alive and well and without recurrence 5 years or more after operation. They are :—

1	alive and well		16	years	after operation.
2	„	„	14	„	„
2	„	„	10	„	„
3	„	„	9	„	„
3	„	„	8	„	„
1	„	„	6	„	„
1	„	„	5	„	„

Four died from other causes than cancer, and up

to the time of their death had had no recurrence. They were as follows :—

1	died	20	years	after	operation.
1	,,	14	,,	,,	Cause of death not given.
1	,,	13	,,	,,	
1	,,	5	,,	,,	

In this series we therefore have 17 out of 46, i.e. 42·5 per cent, who showed no sign of recurrence at periods ranging from 5 to 20 years after removal of their cancers.

A fourth surgeon gives a record of 62 cases. They are as follows :—

1	alive	and	well	12	years after operation.
1	,,	,,	10	,,	,,
1	,,	,,	9	,,	,,
2	,,	,,	8	,,	,,
1	,,	,,	$7\frac{1}{2}$	,,	,,
1	,,	,,	7	,,	,,
3	,,	,,	$6\frac{1}{2}$	,,	,,
1	,,	,,	6	,,	,,

Five died of other diseases, and with no recurrence of their cancer, 1 twenty years after operation from chronic bronchitis, the others at too short intervals to say whether they were cured or not ; 8 could not be traced. Leaving out the latter from the calculation, we have 12 out of 54, or 22·2 per cent, who had no recurrence at periods ranging from 6 to 20 years after operation.

These records suffice for our purpose. They are individual experiences of hospital surgeons in dif-

ferent parts of the world. It will be understood they are merely samples, and could be multiplied to any extent. They demonstrate that in cases that present themselves early enough to be considered operable the expectation of cure on the five-year basis is somewhere between 22·2 per cent and 50 per cent; and the details show many cases alive and well at much longer periods than this, or who have died of other diseases much later than 5 years without any sign of recurrence. It will be seen that the percentage varies within wide limits. This might be expected owing to the limited number of cases in the lists or to certain special circumstances. To get a stable figure a much larger number would have to be taken. They answer the question, however, and furnish a complete demonstration of the possibility of cure. But even more striking evidence based on a very large number of cases is forthcoming. Cancer of the breast has been probably studied more thoroughly and more complete records have been kept in the Surgical Pathological Laboratory of the Johns Hopkins Hospital, Baltimore, U.S.A., than anywhere in the world. The late Professor Halstead, of that institution, was the pioneer in the modern operative treatment of cancer in this region. Here we find the separation of early operable from more advanced, but still operable, cancer, the necessity for which has been already stressed in estimating the possibilities of cure. The statistics from that hospital, extending over a period of 25 years, show that when a woman with cancer

of the breast applies so early that there is only a local lump in the breast, and no evidence of extension of the disease to the neighbourhood (glands in the arm-pit), her chances of cure are 70 per cent ; when, on the other hand, she applies later, and there is evidence of extension of the disease to the neighbourhood (glands in the arm-pit), her chances of cure fall to 20 per cent. In other words, the percentage of cures in this clinic in early cancer is 70 ; in cancer as ordinarily met with, i.e. at the time patients usually apply, it is 20. On this point and on the evidence actually obtained Dr. Joseph Colt Bloodgood says : " What the permanent cure of ' cancer lump ' in the breast will be when all women seek an examination at once we do *not* know, but we *do* know that it will at least be 70 per cent." And again : " When we study our thirty-three thousand histories (records) of patients in the Surgical Pathological Laboratories of the Johns Hopkins Hospital since 1890 and search for the chief controllable factor of our failure to cure, it is the duration of the disease known to the patient and recorded by the answers to ' How long have you been ill ? ' ' How long have you felt the lump ? ' "

The surgical clinics of Anschütz and Perthes carry us even a step further than this. The published results are based on a three years' freedom from recurrence. I am informed, however, by Dr. Hans Holfelder, of the surgical clinic of the University of Frankfort, that the results based on a five years' freedom from recurrence are now available,

and though not yet published are very little behind the three years' figures. Steinthal divides cancer of the breast into three stages, depending entirely on how far it has advanced when it comes for treatment. The first is the very early stage, i.e. when there is only a lump in the breast and there has not been time for the disease to spread to the skin, muscle, or neighbouring glands. The second is the usual stage in which patients apply, i.e. when time has been allowed for the disease to spread to the skin, muscle, and neighbouring glands. The third is a still more advanced stage and does not concern us. What does concern us is this: that in the second stage Anschütz has obtained 32·7 per cent and Perthes 27·5 per cent of cures; while in the first or really early stage the former has no less than 100 per cent and the latter 90 per cent of cures. No more complete demonstration than these figures could be given of the theoretical conclusion that every case of cancer of the breast is curable if removed early enough, and that the disease only becomes incurable owing to the delay in getting rid of it.

(b) *Cancer of the Womb*

The statistics of Wertheim, who was the pioneer of the modern operation for cancer of the womb, cover a very large number of cases. Of 450 women with cancer of the womb, in whom the disease was considered not too far advanced when they first applied for removal, 186, or 41 per cent, remained

free from recurrence after 5 years—in point of fact, were probably cured.

Another surgeon publishes a record of 237 cases, operable and operated upon. Of these, 38 per cent had no recurrence after 5 years. Yet another gives an experience of 153 operable cases with a percentage of 35·6 per cent alive and well and with no recurrence after 5 years.

Two British gynæcologists, on the staff of the Middlesex Hospital, have published their joint results in 100 operable cases of cancer of the womb removed between April, 1907, and September, 1911. One of them has subsequently published his results in 100 operable cases performed by himself between April, 1907, and July, 1915.

Both of these series deal with average cancer as it presents itself to the surgeon, i.e. the cases were considered operable and were operated upon, but they were not in any way picked with a view to obtaining the best results possible. Every case, as stated in the records, was operated upon in which there appeared to be a reasonable chance of completely removing the disease. The two series give almost identical results. They show in the first 39 per cent, and in the second 40 per cent, alive and well and with no sign of recurrence after 5 years. Further, both these series have been divided, on the same lines as those for cancer of the breast at the Johns Hopkins Hospital, U.S.A., into late and early cases according as there was evidence or not of the disease having extended from the original growth

to the neighbouring glands. Following on this division, of the late cases only 7 out of 35, or 20 per cent, in the first series, and only 9 out of 38, or 23·6 per cent, in the second series, were known to be alive and well 5 years or more after removal; whereas, of the earlier cases, in the first series 32 out of 65, or 49 per cent, and in the second 31 out of 62, or 50 per cent, were alive and well and free from any sign of recurrence after 5 years.

As in the case of the breast, these results not only amply demonstrate the possibility of cure in cancer of the womb, but the last-mentioned records further show conclusively the rapid improvement in the prospect of cure the moment cases come to be operated upon in the earlier stages of the disease.

(c) *Cancer of the Lip*

The latest returns from the Mayo Clinic, Rochester, U.S.A., kindly supplied to me by Dr. A. Compton Broders, are as follows. They embrace 537 cases of cancer of the lip treated at that clinic from November 1st, 1904, to July 22nd, 1915, all proved by microscopical examination to be cancer, and including all types of cases such as those who have been previously treated surgically, by X-ray, radium, paste, etc., before entering the clinic. Of this number 21 were inoperable, leaving 516 that were operable and operated upon. Of these, 306 have been subsequently traced: 124, or 40·25 per cent, are dead, and 182, or 59·47 per cent, are living; 92·85 per cent of the living have been free from

recurrence for an average period of 7·76 years. Of those operated upon and who have subsequently died, 62·63 per cent did so of recurrence of the disease. By combining the good results of those who lived a number of years without recurrence, and later died from some other cause, with the living patients who had survived the operation with no recurrence for an average of 7·76 years, the total of good result, i.e. probably cure, is 72·34 per cent.

The same clinic supplies some further results in which the early operable have been separated from the other operable cases. This series, which comprised 136 cases for the years 1912–14, was followed up for from 5 to 8 years after operation. They are divided into early operable (i.e. where the disease before its removal had not yet been given time to spread to the glands of the neck and cause their enlargement) and later but still operable cases (i.e. when the disease *had* had time to spread to and cause enlargement of the neighbouring glands). The first series shows 90 per cent of cures, the second only 18 per cent. Dr. Bloodgood (Johns Hopkins Hospital) has followed up a series of cases for five years in which the neighbouring glands were removed in all cases,[1] and microscopically examined for evidence of the spread of cancer from the lip to them. Where the neighbouring glands showed no evidence of cancer—in other words, where the growth was removed so early that it was still confined to the local point of origin, the lip—the

[1] The modern operation for cancer of the lip.

percentage of cures was no less than 95. Where, on the other hand, removal took place later, after the growth in the lip had had time to spread to the neighbouring glands, the percentage of cures fell to 50. Both of these series of cases lead to the same conclusions, viz. that in practically every case cancer of the lip can be cured if removed early enough, and that delay in removal is the sole reason of that desirable end not being attained in every instance.

(d) *Cancer of the Tongue*

The statistics from a number of sources (Butlin, the Massachusetts Hospital, Boyd and Unwin, Caird, the Bristol Royal Infirmary, etc.) show that in average operable cases about one-third are cured ; further, that if conditions are favourable as regards situation and especially earliness of removal, this figure mounts up to nearly half. These results approach but do not equal those of the Johns Hopkins Hospital to be immediately submitted. Nevertheless they corroborate them in every particular.

An analysis of 160 cases of cancer of the tongue from the Surgical Pathological Laboratory of the Johns Hopkins University, Baltimore, U.S.A., during the period 1889 to 1921, gives the following results. They are divided into four groups—early, advanced, hopeless, and inoperable. Of the early cases, 36 in number, 62 per cent were alive and well and without any sign of recurrence 5 years or more after removal of the disease. Of the advanced cases, 75

in number, 12 per cent were alive and well and without recurrence 5 years or more after removal. Of the hopeless cases, 22 in number, and the inoperable cases, 27 in number, all died. Thus it will be seen that of the 160 cases, 49 were hopeless and inoperable, nothing could be done for them and they all died. Of the remaining 111 cases which were operable and were operated upon, 31 were well and without recurrence 5 years or more afterwards, i.e. about 2 in 7. This proves the possibility of cure, but is not a very rosy prospect. But the records, which have been very carefully sifted, give much more definite and valuable information than this, and emphasize, as I have stated above, the necessity of separating the early from the other operable cases in all records of the results of operation for cancer before an estimate of the measure of cure can be arrived at. These records show that the stage of the disease in which a large class, 49 in number, apply is that of hopeless and inoperable cancer, and that in them there is no chance of saving life at all; that the stage of the disease in which far the majority apply (75 out of 160, or nearly half) is not quite so late as this, but that it is nevertheless one of advanced cancer, and that their chance of cure is quite small (about 1 in 8). Lastly, that the stage in which a comparatively small class, 36 in number, apply is that of early cancer, and that their chances of cure at once jumps to 62 per cent, or considerably more than 1 in 2. No figures could more forcibly demonstrate the possi-

bility of cure in cancer in this region if it is early, and its improbability if it is late.

(e) *Cancer of the Skin*

The latest returns from the Mayo Clinic, Rochester, U.S.A., embracing the traceable results of 256 cases of cancer (epithelioma) of the skin after operation give the following results: 16 of these were inoperable, 250 were operated upon. Of these 250, 141 have been traced, the remaining 109 have been lost sight of. Of the 141 that have been traced, 68, or 48·22 per cent, are living; and of these, 56, that is, 82·35 per cent, report a good result and have been free of the disease for an average of 7·44 years; 73 of these 141 cases, that is, 51·77 per cent, are dead. Of these, the cause of death was determined in 58, and of this number 38, or 65·51 per cent, died of recurrence of the disease. By combining the good results of the patients who lived a considerable number of years without recurrence, and later died from some other cause, with the living patients in whom there was no recurrence for an average period of 7·44 years, a total good result, i.e. probable cure of 59·84 per cent, has been achieved.

Between the years 1894–1901, 171 patients suffering from cancer of the skin in various situations were operated upon in the clinic of a celebrated Berlin surgeon. Of these, 76 per cent in 1904 had had no recurrence, or had meanwhile died of other diseases.

In this connection Dr. Bloodgood, of the Johns Hopkins Hospital, says that, although the figures

have not yet been completed at that clinic for cancer in this situation, so far as they go they lead to the same conclusion as in cancer of the breast, i.e. that early removal spells " cure," and that the chances of cure diminish in direct ratio to the duration of the disease. He states that a study during 30 years of cancer of the skin leads him to the conclusion that no one properly instructed and treated should die of it.

(f) *Cancer of the Rectum* (*Lower Bowel*)

A well-known surgeon, on the staff of the St. Mark's Hospital for Diseases of the Rectum, London, has kindly supplied me with his figures for the years 1915, 1916, and 1917. The cases which were considered operable and were operated upon, and included both hospital and private patients, show 45 per cent alive and well and with no recurrence after 5 years. A very high percentage in this region are inoperable when they first apply (cf. p. 124, Chapter VII).

An eminent specialist, on the staff of the Gordon Hospital for Diseases of the Rectum, London, has published the results of 31 cases in which the disease had been removed and whose after histories he has been successful in tracing :—

1	alive and well and with no recurrence after				11	years.
1	,,	,,	,,	,,	10	,,
4	,,	,,	,,	,,	9	,,
3	,,	,,	,,	,,	8	,,
3	,,	,,	,,	,,	7	,,
4	,,	,,	,,	,,	6	,,
16	Total					

There were 17 in this series who could not be traced. Taking the most unfavourable view of these untraced cases, viz. that they had all died of recurrence, we have 16 out of 48 cases, or 33·3 per cent, almost certainly cured.

The conjoint tabulated list of two foreign surgeons give the following results :—

1	was known to have lived			16½	years	after operation.
1	,,	,,	,,	16	,,	,,
1	,,	,,	,,	14	,,	,,
1	,,	,,	,,	13	,,	,,
1	,,	,,	,,	11	,,	,,
1	,,	,,	,,	8	,,	,,
1	,,	,,	,,	7	,,	,,
1	,,	,,	,,	6	,,	,,
1	,,	,,	,,	5	,,	,,

These figures are quite sufficient to establish the curability of cancer in this region.

(g) *Cancer of the Larynx* (*Voice Box*)

The figures given under this heading apply only to what is known to laryngological surgeons as intrinsic cancer of the larynx. This derives a distinct entity from its position, and is the only variety in this locality in which the treatment by removal can be considered generally hopeful. A distinguished laryngologist, on the staff of King's College Hospital, London, in an address to the Tenth International Congress of Otology, Paris, in July, 1922, submitted a record of 51 cases of intrinsic cancer of the larynx

comprising all those operated on by him up to the end of the year 1921. Every case, it is stated, was verified by microscopical examination as undoubted cancer, either before or after operation. The cases were not specially selected; every one that presented a prospect of lasting cure was operated upon. Of these 51 cases, 17, or 33 per cent, were alive and well and without any recurrence 5 or more years after removal of their disease. The particulars are as follows:—

TABLE I

1	alive	and	well	without recurrence	13	years after operation.
1	,,	,,	,,	10	,,	,,
1	,,	,,	,,	10	,,	,,
1	,,	,,	,,	9	,,	,,
1	,,	,,	,,	8	,,	,,
1	,,	,,	,,	7	,,	,,
1	,,	,,	,,	6½	,,	,,
1	,,	,,	,,	6	,,	,,
1	,,	,,	,,	6	,,	,,
1	,,	,,	,,	6	,,	,,
1	,,	,,	,,	6	,,	,,
1	,,	,,	,,	5½	,,	,,
1	,,	,,	,,	5½	,,	,,
1	,,	,,	,,	5½	,,	,,
1	,,	,,	,,	5	,,	,,
1	,,	,,	,,	5	,,	,,
1	,,	,,	,,	5	,,	,,

Five had died of other causes 5 years or more after removal without in the meanwhile showing any signs of recurrence. The particulars are as follows:—

TABLE II

1 died of tubercle	10 years	after operation.
1 „ bronchitis	6 „	„
1 „ pneumonia	5–8 „	„
1 „ cerebral hæmorrhage	$6\frac{3}{12}$ „	„
1 lost sight of	6 „	„

Besides these, there are 13 out of the 51 cases alive and well and without recurrence, the periods reaching from 3 months to 4 years after operation; and 6 who had died of other causes less than 5 years after operation, having in the meantime shown no sign of recurrence.

Omitting these altogether from the calculation as not having fulfilled the time limit of 5 years, and adding together Tables I and II, which have done so, we arrive at the result that at least 22 out of 51, or 43 per cent, were almost certainly finally cured; that of the 22 cases who were known to have lived 5 years or more after operation, in only 1, or less than 5 per cent, did recurrence take place after that time.

Figures have now been submitted in proof of the curability of cancer in those regions in which it is readily amenable to surgical removal. The sources from which the figures are drawn have in nearly every instance been indicated, and though, for reasons stated before, the names of the actual operators have not been given, any medical man could readily verify them. The evidence from such

sources would be accepted by 99 out of every 100 medical men (the sceptic and unbeliever we have, like the poor, always with us) as above suspicion. It may therefore be confidently handed on to the public as worthy of all credence. It proves beyond a shadow of doubt that in those regions in which cancer can be dealt with by modern surgery—and they are fortunately among its commonest situations —it is no longer to be considered an incurable disease at all ; difficult to cure by reason of the fact that there is only one stage—the early stage—of it in which this is obtainable ; but possible inasmuch as that stage exists in every case. Moreover, the figures cited prove conclusively that in every instance the nearer patients approach the early stage the greater is the percentage of cures ; and so great does this percentage become that in some instances it has exceeded 90 per cent, and in one instance (Anschütz) has actually reached 100 per cent.

Comparison is invited between these figures, which represent the most recent results of the treatment of cancer, with the figures and experiences of the most eminent surgeons of the middle of the last century quoted at the beginning of the present chapter. They furnish a flat contradiction of the views held of this disease little more than a generation ago. They show that a complete revolution has occurred in its treatment in removable situations, which, in the light of the results attainable, must entirely alter our outlook towards it. Can it be doubted that if Sir Benjamin Brodie, Sir

James Paget, Benedict, and others had had these figures before them, they would never have expressed those pessimistic views in regard to this disease which were the direct outcome of their experience of its treatment by removal at that time ? Those views were justified then ; they are quite untenable now.

The disease may be likened to one with which the public has become tolerably well acquainted of recent times, and in which the treatment is the same and for the same reason—appendicitis. During the present generation the medical profession first has become educated to the conviction, and later through it a considerable section of the public has come to know that, if acute appendicitis arrives, the only safety lies in the removal of the appendix while the disease is still local and confined to that organ ; that if there is delay, and poison from the diseased appendix is given enough time to get into the system beyond the reach of the surgeon, there is the utmost danger to life. The medical profession now acts promptly on that conviction, and it has the ready co-operation of numbers of educated people, who on suspicion of it seek assistance at once and readily submit to immediate operation if advised to do so. But it was not so a generation ago either with the profession or the public. Disastrous delays, followed by as disastrous consequences, lay at the door of one or the other, or both. It is exactly the same thing with cancer to-day in some situations. The medical profession as a whole has

not become convinced, the public does not know, and the consequences are exactly what might have been anticipated. It has taken a generation to bring the profession and the public up to date in appendicitis. It has been entirely a matter of education. It will take as long or longer to bring them up to date in the case of cancer.

In face of the figures given above there is no longer ground for hopelessness in regard to the disease in certain situations either in the ranks of the profession or the public. There is no occasion for the half-hearted warning of the Ministry of Health that " much caution is obviously needed in announcements to the public on cancer in order to avoid over-statement, the making of promises which are not warranted by the evidence." As regards the making of promises, it has already been emphasized, and the reason has been given, that they are never justified, and no honest medical man would make them. But we have the evidence. It has been given here. It proves that cancer in removable situations is a curable disease. The next chapter will show why it is comparatively so seldom cured. We shall then know exactly where we stand, and in which direction we must move if we are to make the opportunity of cure a reality of cure.

Before concluding this chapter one matter remains to be briefly discussed. The reader may say, " You have proved to my satisfaction the curability of cancer in removable situations by surgical means,

but what about the risk of the operation itself?" It is a very natural question and one which must force itself on everyone confronted with a surgical operation. To begin with, it cannot be said that there is no risk in any operation. The Delectus tells us "Humanun est errare," and so long as patients are human and surgeons are the same, all risk will not be eliminated from any surgical procedure, no more than it is eliminated from crossing the street. A moment's reflection, however, will show that in the disease under discussion the risk of operation, whatever it may be, is hardly worth considering. The disease itself is inevitably and always fatal. The authentic recorded cases of spontaneous cure of cancer are so few that it may be said practically never to happen. The risk may therefore be likened to that run by a crew in taking to their boats from a sinking ship. Whatever the possible risks in store, few would be found who would not take them. So it is with cancer. If the disease is certain, as it is, to prove fatal, then it is surely worth while availing oneself of an opportunity of escape, even though that opportunity is accompanied by an appreciable risk. Or, to take a medical simile, an acute perforated appendix provides a parallel case. The patient is advised that immediate operation is the only thing that will save his life. Any risk there may be from the operation itself rarely deters him from giving his consent to it. He accepts that risk to avoid certain death. At the same time there is a difference in cancer from

both of these. In the case of the sinking ship, the members of the crew can see for themselves that a catastrophe is at hand ; their own common sense convinces them that, whatever the risk, they have no choice in the matter. In a perforated appendix a patient's own instinct tells him that his life is in danger ; he most likely feels very ill and is probably in great pain. But in early cancer neither of these things happens. The patient as a rule feels perfectly well and suffers no pain whatever. He is not himself conscious that his life is in any danger at all. He is therefore under great and natural temptation to postpone or refuse operation. But the ultimate risk is just as great. We have, on the other hand, an exactly parallel case later on when the disease is advanced. The patient then knows instinctively himself that his life is in danger ; he feels ill ; he is very likely suffering great pain. He has no hesitancy now. He is practically always willing to consent to any operation, to be rid of his disease, whatever the risk, however remote the chance of saving his life. The case has been put in this way in the hope of convincing anyone pronounced to have early cancer that there is no sense and no reasonableness in refusing operation. One often hears the remark, not in connection with cancer only, " I would rather die than undergo an operation." That could hardly have been described as an unreasonable attitude in pre-anæsthetic and pre-antiseptic days. The horror associated with any operation, and the risk attending any operation,

were then so formidable that the determination to face death rather than undergo it was quite intelligible and quite excusable. But the introduction of anæsthetics has robbed the knife of its horrors, and that of antiseptics surgical procedures of almost all their dangers. To refuse treatment therefore nowadays, and to postpone it in a disease which will be inevitably fatal if not removed as soon as discovered, because it involves a surgical procedure, is beyond the bounds of reason.

In the localities of cancer which we are considering in this book the operative risks are as follows. The risk in cancer of the breast is somewhere between 1 and 2 per cent; in cancer of the womb about 10 per cent; in cancer of the lip it is very low, possibly 1 or 2 per cent. Of 70 cases operated upon in the Bristol Infirmary none died. In cancer of the tongue there are several operations varying with the position and stage in which the disease has to be dealt with. But if the disease is confined to the tongue and is dealt with early, as advocated in these pages, the operative risk is no more than between 5 and 10 per cent. In advanced cancer or cancer unfavourably situated it is considerably greater. In cancer of the skin it is very small indeed, probably not 1 per cent; if treated early in all cases it would be nil. In cancer of the rectum, as in cancer of the tongue, there are several operations practised with varying operative risks. That as practised now by most surgeons is about 13 per cent. There is a more severe operation which it is

claimed gives a higher percentage of cures, but which is accompanied by a higher mortality, and for that reason it does not commend itself to most surgeons. In cancer of the larynx treated of here (intrinsic) the operative risk is about 6 per cent. It will be seen that in three out of the seven regions we are considering, viz. the breast, the lip, and the skin, the operative risk is so small as to be practically negligible. In cancer of the larynx it is quite small, only 1 in between 16 and 17 cases ; in cancer of the womb, tongue, and rectum it is round about 1 in 10. It cannot be said, therefore, that in any of these regions the risk is a great one, when one considers that on the other side of the ledger is certain death. Moreover, this is the operative risk under conditions now existing. It is certain that if generally early removal were the case it would be considerably lessened. As I have said elsewhere in this book, it is not the actual dread of operation that as a rule keeps the patient away from the surgeon until it is too late. There is the conviction in the public mind that whatever is done it will eventually be useless. The main object of this book is to exorcise that conviction.

CHAPTER VII

THE CONDITION OF CURE AND HOW IT LAGS BEHIND

WE have now reached a very definite position. It is, to recapitulate briefly, this. It has been demonstrated that whatever predisposing conditions may exist to the development of cancer—and of such we know for certain nothing except that it is generally, if not invariably, associated in some way with chronic irritation or injury—the disease itself always commences as a local growth in some particular part of the body ; that after remaining local for a variable time it proceeds to spread from this local focus to other parts, first in the immediate vicinity of the original growth, and later to more distant parts of the body, any or all of which may be ultimately involved ; that if the disease occurs in a situation where it can be recognized while it is still confined to its local site of origin or its immediate neighbourhood (comprising roughly one-third of all cancers in males and one-half of all cancers in females), and if it can be completely removed during that period, it can be definitely cured, and has been cured over and over again ; that if, on the other hand, the disease is removed after cancer cells have had time

to spread to more distant parts of the body, the disease will return and prove incurable. Now, there is no means of knowing in any given case how soon the disease will begin to spread, or with any certainty how far it has spread.[1] If, as far as the surgeon can judge, it has not spread beyond the possibility of complete removal, he, justified by the knowledge that it will be inevitably fatal if left alone, advises operation, and *hopes* he will succeed in his objective of completely eradicating it and so effecting a cure. That is all he *can* do. It is evident from this that the only safety for the patient lies in securing removal at the earliest possible moment after discovery. This gives the best chance of cure in every case, because the sooner the disease is removed the less is the time it has to spread at all. In other words, the measure of the chance of cure is the interval that elapses between the discovery of the disease and its removal. If in any given case the disease spreads very rapidly (as, for instance, it usually does in cancer of the tongue), even although the interval be quite short, e.g. a few weeks, it may be too long to make it possible to save the patient's life. If, on the other hand, in another case, the disease spreads very slowly (as, for instance, it frequently does in cancer of the skin, and of the breast in old people), the interval may be quite a long one, e.g. several months, yet it may be short enough to make it possible to completely remove it and cure

[1] Hence the impossibility of *promising* a cure, as stated before, in any individual case however early and however favourable.

the patient. And all degrees of cases occur between these two extremes. But the point is that in *every* case the disease must take some time to spread; the shorter the interval, therefore, between discovery and removal, the greater is the chance that the disease has not had that time. *Time is the governing factor in every case without exception.*

With this point clearly in mind let us see now what the sufferer from cancer does. Let us inquire how long he waits in these situations, knowing all the time there is something wrong with him, before consulting a doctor.

The first thing he does is to wait so long that a large percentage of cases is inoperable when first seen by the surgeon, and nothing curative can be attempted or even suggested.

Except for factors that may occasionally rule out any operation anywhere, and which are common to all surgical procedures—such, for instance, as advanced heart or kidney disease—the only difference between inoperable and operable cases in cancer is the time the patient has waited before coming to the surgeon; in other words, every inoperable case was at one time operable. So that a patient by waiting till a case of cancer has become inoperable means that he has destroyed any possible chance of saving his life. For reasons stated before (cf. Chapter VI, p. 89) the operability rate must vary to a certain extent with different surgeons, and absolute figures cannot therefore be given. Only when statistics have been worked out much more

fully than they have at present will this be possible. At present the limited figures for particular surgeons or particular institutions only are available, and even these are not easy to procure. Still, they are quite sufficient to establish the point at issue, and approximately similar results would follow a more extended investigation.

It should be noted, in estimating the inoperability rate in any region from a series of cases that come into the hands of a particular surgeon or apply at a particular institution, that many individuals suffering from this disease never apply at all. Some, through ignorance or fear or from other motives, first call in a doctor when the disease is clearly too far advanced for anything to be done for them, and are advised that it is no use applying; others remain in the hands of quacks and charlatans till the final stages of their disease, and when first seen by a doctor are advised that for the same reason recourse to surgical assistance will be of no avail. So that the figures given here indicate something very appreciably below the true inoperability rate. It is really considerably higher than this for all regions. How much higher it is obviously impossible to determine.

(a) *Cancer of the Breast*

The most comprehensive statistics that I have been able to obtain in this region are those of the Johns Hopkins Hospital, Baltimore, U.S.A., from June, 1889, to August, 1899, a period of 10 years.

They comprise a record of 228 patients admitted to that hospital for cancer of the breast. Of these, 29 per cent were inoperable, i.e. the disease was too far advanced for the surgeon to make any attempt at removal. These records, extending over a long period (10 years) at an institution where perhaps more accurate records of this disease have been kept than anywhere in the world, and before the Publicity Campaign in America[1] was in existence, may be taken as representing fairly accurately what women usually do who have cancer of the breast. They tell us that 29 out of every 100 women with this disease wait so long that when they first apply nothing can be done for them; that they have forfeited the only possible chance of saving their lives.

(b) *Cancer of the Womb*[2]

The following are the figures of the operability rate of cancer of the womb from the best known foreign and British sources: Wertheim's operability rate was about 50 per cent; Doderlien and Konig gave the average operability rate of ten operators as 68 per cent; Gelundler's was 46 per cent. The two British surgeons, on the staff of the Middlesex Hospital, whose figures have been quoted in the previous chapter on the curability of cancer of the womb, give their operability rate as 63 per

[1] Since that campaign has been in force in America, women are applying much earlier at this hospital.

[2] i.e. neck of the womb.

cent. Taking the average of these four records, comprising those of thirteen different operators, the operability rate is 57 per cent, and the inoperability rate therefore 43 per cent. This means that, of every 100 women who have cancer of the womb, 43 wait so long before coming to the surgeon as to have forfeited any chance whatever of escaping death.

(c) *Cancer of the Lip*

In this situation a comparatively low percentage is actually inoperable when they first apply. The disease, owing to its position, becomes so conspicuous and so unsightly that only a blind man could fail to take notice of it. Although, therefore, even here many wait, as will be shown later, a long time before applying and prejudice thereby very much their chance of cure, comparatively few postpone so long as to be wholly inoperable. At the Mayo Clinic, Rochester, U.S.A., from November 1st, 1904, to July 22nd, 1915, a period roughly of 11 years, 537 patients applied suffering from cancer of the lip, verified in every case microscopically. Of this number 21, or 3·9 per cent, were inoperable. This is a very low percentage, and compares very favourably with the experience of other institutions.

In the Frankfort Clinic, the figures supplied me by Professor Schmieden, Director of the clinic, show that during the past 15 years 61 patients applied with cancer of the lip, and that, of these, 16, or 26·2 per cent, were inoperable.

The inoperability rate at the Manchester Royal Infirmary over a series of consecutive cases, extending from January, 1923, to May, 1924, works out at 14 per cent. Lumping the records of these various institutions together, the inoperability rate in cancer in this situation is 14·6 per cent. This means that in a region like the lip, where a patient could not fail to be aware within a month of something wrong if he had commencing cancer there, 14 out of every 100 wait so long before seeking efficient treatment that no attempt whatever can be made to rid them of their disease, which must be left to proceed to an inevitably fatal issue.

(d) *Cancer of the Tongue*

The most comprehensive statistics available come from the Johns Hopkins Hospital, Baltimore, U.S.A. They comprise 160 cases admitted to that hospital with cancer of the tongue during the four decades between 1889 and 1921. Of these, 49, or 31 per cent, were classed as hopeless and inoperable, and all of them died ; 75, or 47 per cent, were classed as advanced but still operable, and were operated upon. Of these, 12 per cent had had no recurrence after 5 years. These figures show that, of every 100 people with cancer of the tongue, 31 wait so long that nothing whatever can be done for them, and another 47 so long that their chance of cure is very small (only 12 per cent) ; that, in fact, 78 wait so long that there is either no chance at all or a very small chance indeed of saving their lives.

(e) *Cancer of the Skin*

In a series of 256 cases of cancer of the skin at the Mayo Clinic, Rochester, U.S.A., 16, or 6·25 per cent, were inoperable. At the Manchester Royal Infirmary, of a series of consecutive cases extending from January, 1923, to May, 1924, 10 per cent were inoperable when they first applied. The records of both these institutions taken together give the inoperable rate as 8·12 per cent. As in the lip, the conspicuousness of the growth in the skin usually compels a patient to seek advice before it has gone so far as to be entirely inoperable. Nevertheless, even in these situations many, as will be shown later, handicap by long delays their chances of cure, and 8 out of every 100 actually contrive to elude any possibility whatever of saving their lives.

(f) *Cancer of the Rectum*

The figures of St. Mark's Hospital, London, show 83 per cent of cases inoperable when first seen by the surgeon. The figures of most English and American surgeons who have published statistics work out at between 50 per cent and 65 per cent. An eminent authority on cancer of the rectum, attached to the staff of St. Mark's Hospital, gives his figures for private patients as 50 per cent inoperable when first seen. We may therefore say

that, of every 100 people with cancer of the rectum, at the very least 50, and in most cases considerably more, wait so long before coming to the medical man as to destroy any possible chance of saving their lives.

(g) *Cancer of the Larynx* (*Intrinsic*)

In the absence of available statistics from several institutions at which I have made inquiry, I give the experience of a distinguished laryngologist on the staff of King's College Hospital, London. He states : " I should say that in hospital practice 60 per cent or 70 per cent arrive so late that they are inoperable by any method. In private practice 20 per cent are inoperable by any but a most severe procedure (laryngectomy), and 10 per cent by any method." So that, of every 100 hospital patients, 60 or 70 by delay have let slip any chance whatever of saving their lives ; and, of every 100 private patients, 30 have lost either any chance at all or have only a very slender chance, and that by a very severe operation.

Having disposed of the inoperable cases—in point of fact they inevitably dispose of themselves—we next come to the operable, i.e. those who have not waited long enough to make it impossible to attempt to save their lives. According to the above figures, 71 out of every 100 women with cancer of the breast fall into this class ; 57 out of every 100 women with

cancer of the womb; 86 out of every 100 (mostly men) with cancer of the lip; 69 out of every 100 (mostly men) with cancer of the tongue; 92 out of every 100 with cancer of the skin; 50 out of every 100 with cancer of the rectum; 30 or 40 out of every 100 (hospital patients) and 70 out of every 100 (private patients) with cancer of the larynx (intrinsic). These percentages come to operation, and it is out of these cases that the cures reported in the last chapter are got.

Let us inquire how long these wait before consulting a doctor. Since removal at the earliest opportunity after discovery, as has been shown above, must provide the best chance of cure in every case, these patients by exactly the length of time they wait prejudice and lessen that chance. It is easy to arrive at a conclusion on this point. One has only to take a series of consecutive operable cases in which a careful note has been taken of the answer to the question, "How long did you know that you had this sign or symptom, which ever it is, before you consulted your doctor?" and then strike an average.[1] The following are the answers (see next page):—

[1] A scientifically accurate average could be arrived at only by taking a much larger number of consecutive cases than is submitted in these tables. These are not available and they are unnecessary. Any series of cases illustrates the point, viz. what people usually do in the circumstances under consideration.

(a) *Cancer of the Breast*

I submit a list of 19 consecutive cases taken from the notebook of an operating surgeon to which I have had access :—

1	woman had knowledge of a lump in the breast				15 months
1	,,	,,	,,	,,	6 months
1	,,	,,	,,	,,	6 months
1	,,	,,	,,	,,	3½ years
1	,,	,,	,,	,,	1 year
1	,,	,,	,,	,,	4 months
1	,,	,,	,,	,,	1 year
1	,,	,,	,,	,,	6 months
1	,,	,,	,,	,,	5 months
1	,,	,,	,,	,,	12 months
1	,,	,,	,,	,,	12 months
1	,,	,,	,,	,,	12 months
1	,,	,,	,,	,,	4 or 5 years
1	,,	,,	,,	,,	2 years
1	,,	,,	,,	,,	6 months
1	,,	,,	,,	,,	4 months
1	,,	,,	,,	,,	3 years
1	,,	,,	,,	,,	2 years
1	,,	,,	,,	,,	2 years

I exclude the cases that waited 3½ years, 4 or 5 years, 2 years (three cases), and 3 years, because it is possible, though by no means certain, seeing that cancer exceptionally pursues a very slow course, that for the whole of this period the patient was not suffering from cancer, but that the latter supervened at some time on some other disease. By excluding them I am putting the most favourable

construction on the figures. They reveal the fact that in 13 consecutive cases these patients with undoubted cancer of the breast waited on an average 8·5 months before ever consulting a doctor. Here is the record from another surgeon of 21 consecutive cases :—

1	woman had noticed a lump in her breast			2 years
1	,,	,,	,,	2 years
1	,,	,,	,,	1 year
1	,,	,,	,,	2 months
1	,,	,,	,,	6 months
1	,,	,,	,,	2 years
1	,,	,,	,,	9 months
1	,,	,,	,,	1 year
1	,,	,,	,, (nearly)	2 years
1	,,	,,	,,	some months
1	,,	,,	,,	18 months
1	,,	,,	,,	6 months
1	,,	,,	,,	3 years
1	,,	,,	,,	3 years
1	,,	,,	,,	10 months
1	,,	,,	,,	9 months
1	,,	,,	,,	2 years
1	,,	,,	,,	6 months
1	,,	,,	,,	3 months
1	,,	,,	,,	4 months
1	,,	,,	,, (nearly)	1 year

If for the same reason as in the previous series we exclude the cases of 2 years' duration and over, we have 14 consecutive cases with an average wait of 8·2 months. Taking these two series as an indication of what women usually do with cancer of the breast, it is correct to say that, although no wait

whatever after the patient has once discovered the lump is the condition governing cure, she waits on an average over 8 months before even seeking the possibility of it.

(b) *Cancer of the Womb*

This is a list of 33 consecutive operable cases compiled from the records of the Royal Portsmouth Hospital :—

1	woman	had	noticed	abnormal discharge [1]	6 months
1	,,	,,	,,	,,	6 months
1	,,	,,	,,	,,	6 months
1	,,	,,	,,	,,	4 months
1	,,	,,	,,	,,	8 months
1	,,	,,	,,	,,	5 months
1	,,	,,	,,	,,	4 months
1	,,	,,	,,	,,	10 weeks
1	,,	,,	,,	,,	3 months
1	,,	,,	,,	,,	7 months
1	,,	,,	,,	,,	18 months
1	,,	,,	,,	,,	5 months
1	,,	,,	,,	,,	18 months
1	,,	,,	,,	,,	16 months
1	,,	,,	,,	,,	2 years
1	,,	,,	,,	,,	3 months
1	,,	,,	,,	,,	7 months
1	,,	,,	,,	,,	10 weeks
1	,,	,,	,,	,,	3 months
1	,,	,,	,,	,,	4 months
1	,,	,,	,,	,,	4 years
1	,,	,,	,,	,,	7 months
1	,,	,,	,,	,,	12 months

[1] Generally bleeding.

1	woman	had	noticed	abnormal discharge[1]	5 months
1	,,	,,	,,	,,	5 months
1	,,	,,	,,	,,	8 months
1	,,	,,	,,	,,	6 months
1	,,	,,	,,	,,	5 months
1	,,	,,	,,	,,	12 months
1	,,	,,	,,	,,	5 weeks
1	,,	,,	,,	,,	2 months
1	,,	,,	,,	,,	3 months
1	,,	,,	,,	,,	4½ months

If, as before, we exclude the cases of 2 years' and 4 years' duration, which may not have been cancer from the beginning, we have 31 consecutive cases with an average delay, after the patient had noticed an abnormal discharge, usually bleeding, of 6·4 months before she sought the possibility of cure.

The next table is derived from the records of a well-known obstetric physician, published in the British Medical Association Journal :—

4	women	had	noticed signs	2 months or less.
3	,,	,,	,,	2 to 6 months.
3	,,	,,	,,	6 to 12 months.
3	,,	,,	,,	1 year and upwards.

The actual times the patients waited in this series are not stated accurately enough to enable an average to be struck. But the table conforms in its essential features to the first, and shows that, in a consecutive series of 13 cases, 4 only sought advice not later than 2 months after first noticing signs.

[1] Generally bleeding.

The two London gynæcological surgeons mentioned before, attached to the staff of the Middlesex Hospital, working together in this field, with a joint experience of between 500 and 600 operations for cancer of the womb, have calculated that the average time their patients have waited before coming to operation, and after first noticing signs, is 6 months.

(c) *Cancer of the Lip*

The following is a list of 10 cases of operable cancer of the lower lip from the records of the Royal Portsmouth Hospital :—

1	patient	had	noticed	a sore or wart	on the lip	3 months
1	,,	,,	,,	,,	6	,,
1	,,	,,	,,	,,	12	,,
1	,,	,,	,,	,,	2	,,
1	,,	,,	,,	,,	3	,,
1	,,	,,	,,	,,	24	,,
1	,,	,,	,,	,,	6	,,
1	,,	,,	,,	,,	12	,,
1	,,	,,	,,	,,	1½	,,
1	,,	,,	,,	,,	4	,,

The average length of delay before seeking advice in this list of cancer of the lower lip, which must be evident to the patient every day from its very beginning, is 7·3 months. Incidentally, I may mention that I have recently seen the man in this list who only waited 1½ months, 17 years after the removal of his cancer. He was in perfect health and had never had any sign of return. In a series of 11 consecutive cases in the Manchester Royal Infirmary, from January, 1923, to May, 1924, the average time

during which patients waited before applying for treatment, although cognizant of their lesion, was in 10 of them 5 months. There was, in addition, 1 case in which the patient had waited 6 years, making 11 in all. In the cases at the Mayo Clinic from November 1st, 1904, to July 22nd, 1915, comprising the very large number of 537, the average wait worked out at no less than 2·58 years. This, however, included both the operable and inoperable cases. It is obvious that a few cases of very long duration, and cancer is occasionally though not usually of very long duration (except in the skin), will materially affect the average. For instance, in the 11 cases just quoted from the Manchester Infirmary, if the case that waited 6 years is included, the average delay is 11 months; without it, it is 5 months. In endeavouring to arrive at what people usually do, especially if the inquiry covers only a limited number of cases, it is more accurate to omit these exceptional ones of very long duration, a few of which will send up the average delay enormously. I have therefore omitted them in all the calculations, and they consequently put the most favourable construction on the figures. Taking the Portsmouth and Manchester Royal Infirmary cases together, it is probably fairly accurate to say that the average delay in this region is 6 months.

(d) *Cancer of the Tongue*

The following is a list of 26 consecutive cases of operable cancer of the tongue:—

1	patient	noticed	something	wrong	in his mouth	6 months
1	,,	,,	,,	,,	5 or 6	,,
1	,,	,,	,,	,,	6	,,
1	,,	,,	,,	,,	4	,,
1	,,	,,	,,	,,	2	,,
1	,,	,,	,,	,,	7	,,
1	,,	,,	,,	,,	6	,,
1	,,	,,	,,	,,	6 or 7	,,
1	,,	,,	,,	,,	2	,,
1	,,	,,	,,	,,	3	,,
1	,,	,,	,,	,,	3	,,
1	,,	,,	,,	,,	3	,,
1	,,	,,	,,	,,	7	,,
1	,,	,,	,,	,,	3 or 4	weeks
1	,,	,,	,,	,,	3 or 4	,,
1	,,	,,	,,	,,	1 to 2	months
1	,,	,,	,,	,,	1 to 2	,,
1	,,	,,	,,	,,	1 to 2	,,
1	,,	,,	,,	,,	4	,,
1	,,	,,	,,	,,	6	,,
1	,,	,,	,,	,,	6	,,
1	,,	,,	,,	,,	6	,,
1	,,	,,	,,	,,	6	,,
1	,,	,,	,,	,,	6	,,
1	,,	,,	,,	,,	6	,,
1	,,	,,	,,	,,	6	,,

The average time a patient waits here with a sore or growth in his mouth, which he cannot have a single week without knowing it and which must be continually brought to his notice every day, is 4·3 months. Now the table below, supplied to me from the Pathological Surgical Laboratory of the Johns Hopkins University, based on an exhaustive study of 160 cases of cancer of the tongue treated at that hospital between the years 1889 and 1921, shows

that within 1 month 33 per cent of cancers of the tongue have become advanced and, after 1 or 2 months up to 6 months, 29 per cent have become hopeless and inoperable.

TABLE III.—DURATION OF CANCER OF THE TONGUE IN MEN

	Up to 1 month.	1 to 6 months.	6 months to 1 year.	More than 1 year.
Early malignant . .	12	12	3	—
Malignant warts . .	—	1	1	1
Advanced cancer . .	6	46	9	6
Hopeless cancer . .	—	25	9	5

(e) *Cancer of the Skin*

The information in regard to these cases comes from the Manchester Royal Infirmary, and comprises the records of those applying at that institution from January, 1923, to May, 1924. They are all true cancer (epitheliometa) of the skin ; none of them rodent ulcer, a form of malignant disease which attacks the skin but always remains local, and a consideration of which is not included in this book.

Situation.	Number of cases.	Average delay before applying.
Cancer of the skin of the scrotum	10 cases	18 months
,, ,, ,, face .	4 cases	6.3 months
,, ,, ,, eyelid .	1 case	6 months
,, ,, ,, ear .	2 cases	5 months
,, ,, ,, hand .	5 cases	12 months
,, ,, ,, elbow .	1 case	5 years
,, ,, ,, shoulder	1 case	2 years
,, ,, ,, scalp .	2 cases	4½ years
,, ,, ,, thigh .	1 case	6 years
,, ,, ,, foot .	4 cases	15 months

It will be seen that the disease here is very chronic and frequently of very long duration, much more than in other regions. It is almost certain, also, that they were not all cancer from the beginning, but that the disease supervened on a wart, or chronic ulcer, sebaceous cyst, etc., as frequently happens in this situation. It is impossible to determine at what period this took place. Taking the whole of the cases together, 31 in all, the average time the patients waited before seeking advice was no less than 19·4 months. Even with this kind of thing happening, the disease is so slow to spread that the percentage of cures is high (cf. p. 105). As Dr. Bloodgood says, there should be no mortality from cancer of the skin, yet during 1921 in England and Wales no fewer than 1120 persons were registered as having died of it.

(f) *Cancer of the Rectum*

I append a list of 39 consecutive operable cases supplied to me by a distinguished specialist connected with St. Mark's Hospital, London :—

1	patient	had noticed	symptoms	for	3 months
1	,,	,,	,,		4 ,,
1	,,	,,	,,		8 ,,
1	,,	,,	,,		3 ,,
1	,,	,,	,,		4 ,,
1	,,	,,	,,		3 ,,
1	,,	,,	,,		6 ,,
1	,,	,,	,,		1½ ,,
1	,,	,,	,,		7 ,,
1	,,	,,	,,		6 ,,
1	,,	,,	,,		9 ,,

1	patient	had	noticed	symptoms for	5 months
1	,,	,,	,,	6	,,
1	,,	,,	,,	36	,,
1	,,	,,	,,	3	,,
1	,,	,,	,,	1½	,,
1	,,	,,	,,	4	,,
1	,,	,,	,,	12	,,
1	,,	,,	,,	24	,,
1	,,	,,	,,	1½	,,
1	,,	,,	,,	12	,,
1	,,	,,	,,	1 month	
1	,,	,,	,,	3 months	
1	,,	,,	,,	2½	,,
1	,,	,,	,,	12	,,
1	,,	,,	,,	9	,,
1	,,	,,	,,	2	,,
1	,,	,,	,,	2	,,
1	,,	,,	,,	3	,,
1	,,	,,	,,	6	,,
1	,,	,,	,,	60	,,
1	,,	,,	,,	7	,,
1	,,	,,	,,	3	,,
1	,,	,,	,,	12	,,
1	,,	,,	,,	60	,,
1	,,	,,	,,	2	,,
1	,,	,,	,,	(1 week) 0	,,
1	,,	,,	,,	12	,,
1	,,	,,	,,	36	,,

Omitting the 5 cases which give histories lasting 2 years or more, and in which the disease may not have been cancer all the time, we have 34 consecutive patients who waited on an average 5 months before they came into the surgeon's hands.

(g) *Cancer of the Larynx*

The laryngologist whose cases have been quoted previously writes me in answer to the question, how long in operable cases patients have waited before coming into his hands with intrinsic cancer of the larynx? "In intrinsic cancer of the larynx patients have always been hoarse for at least 3 months; most have been hoarse from 6 to 12 months; some have been hoarse for 2 years and yet have been operable."

The foregoing figures are melancholy reading, and reveal a state of affairs positively inviting disaster. The condition of cure, and how it lags behind! Why, it lags behind so much that literally thousands of lives are lost annually that could undoubtedly be saved, while the public stands helplessly, and the profession mostly idly, by. Any intelligent person, lay or medical, if he took the trouble to study these figures, could follow their significance, could see the writing on the wall, and could work out the conclusion to which it inevitably leads. Nevertheless, at the risk of some repetition, I propose to do this for him in the following chapter.

CHAPTER VIII

THE POSSIBILITIES OF CURE

THE evidence advanced in the two preceding chapters merits very close and careful consideration. I propose in the present chapter to briefly summarize it, to submit it in the form of an argument, to elaborate the argument step by step, supplying proof of each conclusion arrived at ; finally, to invite the logical deduction to which the argument leads.

It has been clearly demonstrated in the previous pages—and the reasons for it have been given—that the one thing governing the chance of cure in the treatment of cancer is the time the patient waits between the discovery of the disease and its removal[1] ; that if he waits long enough there is no chance at all ; and that in those cases in which he has a chance (the operable cases) the longer he waits the less is his chance in every instance. Then in certain situations of the disease in which there is no necessity to wait, because in these signs of it must, with rare exceptions, be evident to the patient quite early, and in all of which, as shown in

[1] The time the disease has existed before its discovery cannot of course be guarded against, and must be lost in every case.

Chapter V, the disease is curable by removal, a series of investigations has been made into the length of time the victims of cancer, for various reasons, but chiefly through ignorance, actually do wait. They show :—

(1) That the following percentages wait so long that there is no chance at all of saving their lives : 29 out of every 100 women with cancer of the breast do this ; 43 out of every 100 women with cancer of the womb ; 14 out of every 100 (chiefly men) with cancer of the lip ; 31 out of every 100 (chiefly men) with cancer of the tongue ; 8 out of every 100 people with cancer of the skin ; at least 50 out of every 100 people with cancer of the rectum ; 30 out of every 100 people (private) and 60 or 70 out of every 100 people (hospital) with cancer of the larynx (intrinsic).

(2) That the remainder, i.e. 71 out of every 100 women with cancer of the breast ; 57 out of every 100 women with cancer of the womb ; 86 out of every 100 (chiefly men) with cancer of the lip ; 69 out of every 100 (chiefly men) with cancer of the tongue ; 92 out of every 100 people with cancer of the skin ; 50 out of every 100 people with cancer of the rectum ; 70 out of every 100 people (private) and 30 or 40 out of every 100 people (hospital) with cancer of the larynx (intrinsic), do not wait so long as to destroy any possible chance of cure, but nevertheless prejudice and lessen their chance by periods of delay before seeking advice, extending on an average in cancer of the breast to over 8 months ;

in cancer of the womb to 6 months ; in cancer of the lip to 6 months ; in cancer of the tongue to 4·3 months ; in cancer of the skin to 19 months ; in cancer of the rectum to 5 months ; and in cancer of the larynx (intrinsic) to 6 to 12 months.

Now, it is out of such cases as these that the percentages of cures given in Chapter VI are got. These percentages demonstrate that, notwithstanding and in spite of the fact that people by these long delays give the disease in almost all instances many months of time in which to destroy their lives, yet in a considerable proportion of cases, not often owing to any intelligent action on their part, but due almost entirely to fortuitous circumstances, they are yet in time to have the disease completely removed and be cured. They show that, in spite of this handicap of delay, in cancer of the breast about 20 per cent are cured ; in cancer of the womb about 40 per cent ; in cancer of the lip 72·34 per cent ; in cancer of the tongue 12 per cent ; in cancer of the skin 59·84 per cent ; in cancer of the rectum about 45 per cent ; in cancer of the larynx about 43 per cent. Knowing what we do about cancer, these delays make it a matter of surprise, on the one hand, that so many are cured ; and explain, on the other hand, without any uncertainty why recurrences so frequently take place, and why so many who have been operated upon eventually die of these recurrences. Indeed, they make it a matter of surprise that any are cured at all. If in a disease which is at first local and curable, but is always

from its beginning tending to spread and become incurable, when women with cancer of the breast wait 8 months on an average, it is *still* possible to cure 20 per cent of them ; when women with cancer of the womb wait 6 months, to cure about 40 per cent of them ; when men with cancer of the lip wait 6 months, to cure 72·34 per cent of them ; when men with cancer of the tongue wait 4·3 months, to cure 12 per cent of them ; when people with cancer of the skin wait 19 months, to cure 59·84 per cent of them ; when people with cancer of the rectum wait 5 months, to cure 45 per cent of them ; when people with cancer of the larynx (intrinsic) wait 6 to 12 months, to cure 43 per cent of them—what it may be asked would be the percentage of cures if patients did not wait at all ? It is in the absence of the requisite data impossible to give a complete answer to this question. But we have ample data indicating a complete answer. If the reader will turn to Chapter VI, page 97, he will see that emphasis was laid on the necessity of separating early from other operable cases in endeavouring to arrive at an estimate of the measure of success obtainable in treating cancer.

Recent very valuable evidence on these lines is forthcoming in regard to cancer of the breast, womb, lip, and tongue. It has already been given in Chapter VI. It is repeated here. In regard to cancer of the breast, the records of the Johns Hopkins Hospital show that, taking all the operable cases together, the percentage of cures is only

20; but that, if the early cases (that is, those in which the neighbouring glands have not yet had time to become involved) are separated from the later but still operable cases, the percentage of cures jumps to 70. In cancer of the same region, the records of Perthes and Anschütz in Germany carry us even a step further, probably because there has been a still more rigorous differentiation of the early from the other operable cases. In the second stage of Steinthal, i.e. the stage in which patients usually apply (cf. p. 99), Perthes has obtained 27·5 per cent of cures, and Anschütz 32·7 per cent of cures; while in the first stage, i.e. the very early stage, Perthes has 90 per cent and Anschütz actually 100 per cent. This last record, though at present, as far as I know, unique, does furnish a complete answer to our question in cancer in this region.

In cancer of the womb, a differentiation on similar lines has been made at the Middlesex Hospital by two gynæcological surgeons, as before mentioned, and we have their records. They show that of all the operable cases taken together only about 20 per cent are cured; of the earlier cases (i.e. when the neighbouring glands have not yet had time to become involved) as many as 50 per cent.

In cancer of the lip, at the Mayo Clinic, Rochester, U.S.A., the same procedure of separating the early from the other operable cases in estimating the percentage of cure has been adopted, with a precisely similar result. The records for the years 1912–14 show that in those cases where the disease has had

time to spread to the neighbouring glands of the neck the percentage of cures is only 18 ; where it has not had time to do this the percentage is no less than 90. Again, in the cases reported by Dr. Bloodgood from the Johns Hopkins Hospital, where the neighbouring glands were removed in all cases, whether enlarged or not, and examined microscopically for cancer (the most rigorous test of all), if at the time of the operation the glands showed microscopical evidence of the disease having spread to them, the percentage of cures was 50 ; if not, no less than 95.

In cancer of the tongue, the most recent records of the Johns Hopkins Hospital, comprising 160 cases in this region, show that if all the operable cases are considered *en bloc* the percentage of cures is only 12 ; but if the early cases are reckoned separately it reaches no less than 67.

In the case of the skin, rectum, and larynx, I have not been able to obtain statistics compiled on the same lines. At the Johns Hopkins Hospital figures are being collected, but are not yet completed. With regard to these it is stated, in submitting the figures for cancer of the breast, " The same seems to be true for lesion of the mouth, lip, skin ; for pigmented moles and for all cutaneous and subcutaneous lumps." There is no doubt whatever that when we have the figures the percentage of possible cures in early cancer in all regions favourably situated for removal will be shown to be very high. Yet in these same regions in 1921 the

Registrar-General's returns show that no fewer than 18,118 persons of both sexes in England and Wales sacrificed their lives.

In the above records we can clearly trace the curve of the possibilities of cure in cancer and see its dependence on the interval elapsing between the discovery of the disease and its removal. At the bottom of the curve are the cases which have waited so long that they have become inoperable when they first apply. All of these die. Farther up the curve we find cancer as it usually presents itself to the surgeon, i.e. after the patient has known of the existence, though doubtless in many cases not of the seriousness, of the disease for many months. Even under these unfavourable circumstances it has been demonstrated that many cures are obtainable, though, as is inevitable under such conditions, many recurrences also take place with eventually a fatal result. Higher still up the curve we have unquestionable evidence that where the early operable are separated from the possible operable cases there is a striking increase in the number of cures, with a corresponding diminution in the number of recurrences. But even these do not represent the degree of earliness we should be dealing with were people warned of their danger and all delay eliminated. Far from it. If we peruse the tables in Chapter VI, and note in them the actual times people with cancer of the breast, womb, tongue, rectum, etc., wait before consulting a doctor, we see that there are very few cases indeed in which

people apply with little or no delay. Thus in the first table on cancer of the breast (p. 127) it will be seen that, out of 13 cases certainly, and possibly 19, only 2 consulted a doctor as early as 4 months after discovering the lump. The remaining 11 were all later, many of them much later than this. In the second table, of 14 cases certainly, and possibly 21, only 3 at 4 months or sooner after the discovery of the lump. The remainder were all later, many, again, much later. In the first table on cancer of the womb, of 31 consecutive cases, and possibly 33, only 9, or rather more than a quarter, consulted a doctor 4 months or earlier after noticing the warning of unusual discharge. In the second table, comprising 13 cases, only 4 consulted a doctor 2 months or sooner after noticing the same warning.

In cancer in this region, Winter, of Königsberg, analysed a very large number of cases, 1062 in all, with the view of determining how long patients had noticed signs of ill-health before applying to a medical man.

I submit his table :—

Longer than 1 month.	Longer than 2 months.	Longer than 3 months.	Longer than 6 months.	Longer than 9 months.	Longer than 1 year.	Total.
135	319	283	118	126	81	1062

Out of these 1062 patients only 135 applied earlier than 2 months after noticing something wrong ; 927, or no less than 87 per cent, were in a position to have applied earlier, most of them much earlier, than they did. Commenting on this table,

he remarks : " If the operation is too late, the fault lies with the patient, not with the cancer." By referring to the tables the reader will observe that the same conclusion holds good for all regions.

The above examples show that only quite exceptionally people apply as early as it is in their power to do so.

The actual peak of the curve, as far as I have been able to ascertain from very numerous inquiries in England, America, and Germany, has only been reached and demonstrated in one instance, that of Anschütz quoted in Chapter VI, page 99. As has been already stated, in cancer of the breast removal in the first stage of Steinthal, i.e. the very early stage, has given in the hands of Anschütz actually 100 per cent of cures.

The summit of the curve, the extent of the possibilities of cure, will only be reached when every woman who discovers a lump in her breast to-day consults her doctor to-morrow, when every woman with an irregular bleeding, and every man with a sore on his lip or tongue or skin, does the same thing. By all the evidence we have, and which has been submitted here, we are justified in the logical conclusion that the percentage of cures would be very high, the recurrences very few. The practical result would approach the theoretical conclusion that there is a time in every case of cancer in a removable position when it is curable. This desirable end will only be reached when people are sufficiently educated to take immediate advantage

of the earliest warnings of the disease, and, in full knowledge of the dangers of delay, are sufficiently courageous to act without any hesitation.

I have now demonstrated the curability of cancer. I have shown the circumstances which, in a disease which in certain situations is quite curable, render cures only rarely attainable. I have further submitted proof of the possibilities of cure under other circumstances.

The remainder of the book deals with these other circumstances. It will be devoted to giving the earliest warnings of cancer in those situations in which it is curable, and to a discussion of the methods that should be pursued in our endeavour to make these warnings common knowledge, and by so doing to give the victims of cancer what they have not got now—the opportunity at all events of saving their lives.

CHAPTER IX

THE EDUCATION OF THE PUBLIC

CHAPTER VI has demonstrated the curability of cancer in those regions in which it is capable of surgical removal. Chapter VII has shown the reason why, although cancer in those regions is curable, so few are cured. It is due to one thing and one thing only—delay.

It is not disputed by any modern surgeon that in certain regions of the body, which, moreover, happen to be very common sites of cancer, many lives could be saved if this factor of delay could be eliminated. We are face to face with a disease the only known cure for which is surgical removal. We are face to face with a disease which is curable if removed early, which is inevitably fatal if removed late. We are face to face with the fact that owing to certain circumstances the disease, where removable at all, is generally removed too late. All of this has been demonstrated in the previous chapters. The question is, whether these circumstances can be so altered as to enable the victims of cancer to be treated in time. There is, as far as we can see, no prospect of surgery being able to do much, if anything more, for this disease. The routes of its spread are well known, and the pro-

cedures for dealing with it, in its operable situations, are as perfect as they can well be made. Very little, if any more, is to be anticipated in this direction. *It is only by attacking the problem from the other end and securing early removal that the position can be bettered.* Further, it may be expected (at all events it is theoretically correct) that if the disease could be attacked much earlier the extent of operative procedure could be actually diminished, and operations of a less severe character performed for it.

And what are the circumstances that must be altered, if more lives are to be saved? They are comprised in the attitude of the public towards cancer (cf. Chapter III): an attitude of ignorance and fear. And in face of this, what has hitherto been the attitude of the medical profession? Speaking generally, one of apathy and indifference. Nevertheless, there are not wanting signs of an awakening from this sleepy sickness, and an exception to this indictment must be made in the case of one country at least—America.

As far as I have been able to ascertain, Winter, of Königsberg, was the pioneer in this movement of education of the public, his effort being confined, however, to cancer of the womb in women. In his "Die Bekanafung des Uterus—Krebses," he writes:—

"This task can only be accomplished by the proper education of women on the whole cancer question, and especially on the significance of its earliest symptoms. As long ago as 1891 I demanded

this, but without being in a position to submit any practical proposal, except that the family doctor might be able to supply it. Meanwhile proposals have come from other quarters. I may mention the very instructive monograph of Von Duhrssen, 'The Treatment and Prevention of the Maladies of Women,' in which he very instructively treats in one chapter of cancer of the womb, and warns women against quacks; a further monograph of a Prussian doctor, under the pseudonym Villjon, in which cancer in women is ably dealt with. There exist many other monographs, such, for instance, as 'Until the Doctor Comes,' by Hugo Bartsch, of Heidelberg, which on the same lines have done good. The success of all these, however, has been very meagre. Only a few women read these monographs, especially if they have to pay for them. One must force them to instruct themselves of their own accord on these subjects, and it is only possible through the newspapers. I consider this method the only effective one, and I have adopted it. I have written an essay in the papers in which I have laid bare everything that a woman ought to know about cancer of the womb, and in which I have warned her that her only chance lies in operation, should she become the victim of cancer. I published this essay at the beginning of 1903 in all newspapers which are circulated in East and West Prussia. I think this essay so important in our struggle against cancer of the womb that I submit it as follows," etc.

I believe my work, " The Control of a Scourge ; or, How Cancer is Curable," published in 1906 (Methuen and Co. Ltd.), was the first attempt in any country to deal at all generally with this aspect of the cancer question. I there attempted to show that the only known cure for cancer was early removal, that if the condition of cure, early removal, was observed, the prospect was in certain situations hopeful. But that it was useless to expect any but the most meagre results from this treatment so long as the profession permitted the public to remain in the state of mediæval ignorance of this disease that prevailed at that time, and prevails to this day. It is noteworthy that only 18 years ago such was the dread of even the mention of the word, that a book, the object of which was to educate the public to some extent in the disease cancer, should have had to hide its intention under the absurd title " The Control of a Scourge," invented by the publishers. To-day one can hardly pick up a newspaper without seeing the disease freely discussed from every known and unknown aspect. Even with its grotesque title the seed did not altogether fall on barren ground. The book was published in America as well as this country, and was very sympathetically reviewed in the American Press, many cuttings of which I possess to this day. It is a significant fact that only 6 years after its publication the Society for the Control of Cancer was started in America, exactly on the lines advocated by me. It may have been merely a coincidence—

it is not a matter of importance one way or the other—but I cannot resist the conclusion that it set some of that hustling nation thinking, and had something to do with the genesis of that society. However that may be, and whether their somewhat sensational propaganda is approved on this side of the water or not, and, remembering that what suits the psychology of their people may not suit that of ours, there is no doubt that they have got to grips with the fundamental fact that, unless the victims of cancer can be supplied with the knowledge which will enable them to apply in time, they *cannot* be cured and *must* die ; and having grasped that fact they are employing every available means to supply that knowledge. More power to their elbow ! In this country, an old country, more conservative, less inclined to break away from tradition and get a move on, nothing on a similar scale has been attempted, although the meagre results of the treatment of cancer is fully recognized by the profession, and hardly a paper or a discussion on the disease during the past 20 years has failed to note the fact and to put its finger on the flaw. Yet, even here, there have not been wanting signs of sporadic attempts to break away from this lethargic policy of "do nothing." Portsmouth, acting under my advocacy, was the first municipal authority to adopt means to educate the public in the early signs of cancer in certain situations. This it did in 1914. Our example has been followed by Leicester, Woolwich, and other municipalities. In

1922 a discussion was held at the Royal Society of Medicine on the same subject, and a committee was appointed to get into touch with the Ministry of Health. Quite recently a circular (No. 426), headed " Cancer," has been issued by the Ministry for the guidance of Local Authorities, the object of which it is stated is : " To offer some suggestions which it is hoped may be useful to them in their efforts to inform public opinion on this important subject." After giving some useful information on the known facts about cancer : that it is at first a local disease and that it tends to become disseminated from its local site of origin to distant parts of the body and to be sooner or later fatal ; that the mortality from it is increasing throughout the civilized world ; that it is not hereditary or contagious or dependent upon any known article of diet ; that it is associated especially in some situations with chronic irritation—it proceeds to lay stress on the cardinal facts of the absence of pain in its early stages, leading to a sense of false security on the part of the patient, yet on the absolute necessity of early recognition, because early recognition offers the only prospect of cure. Having reached this point it seems afraid to follow its own premises to their logical conclusion, viz. that the only way to secure better results and to save lives is to press into the service every available means, that can be shown to be free from objection, of securing recognition and treatment at the earliest possible moment. *Early recognition and early treat-*

ment is the one thing that has never been tried in cancer. It can only be secured by the education of the public. The circular hesitates. It warns Local Authorities against making promises that are not warranted by the evidence, or the production of needless and mischievous apprehension of cancer. Nobody would gainsay the soundness of that warning, but it all depends on what it is proposed to teach the public and how it is proposed to teach them. But to teach the public somehow is the only known means of saving life in certain situations.

Further, Methuen and Co. Ltd., the publishers of my book (1906), approached me last year with the request that I should write another edition. After 18 dormant years, so they informed me, inquiry and demand was coming along for it. Hence the present edition, which is practically a new book. The publishers are not now in the least adverse to putting the word "Cancer" on the title-page. This in itself is evidence of a different atmosphere. All these matters, some of them insignificant in themselves, are straws showing which way the wind is blowing, and it is as certain as that daylight follows night that, unless some other and more satisfactory means of dealing with cancer is discovered, this great flaw in its cure by removal—our present and only means, be it remembered, of dealing with it—will be relegated to the dust-heap of mediæval rubbish.

"Magna est veritas et prevalebit."

It will be well here to consider any objection to

the public being put in possession of knowledge of this disease at all, which undoubtedly exists among a section of the medical profession. The only reasonable objection that can be offered is the risk, emphasized in the Ministry's circular, of the production of needless and mischievous apprehension of cancer ; in other words, of producing cancerophobia. It is held by some medical men that, if an attempt were made to educate the public in the early signs of cancer, we should create a race of people in constant dread of being attacked by the disease, always on the look out for it, undergoing a process of daily minute introspection and anxiety to find out whether they had cancer or not, and consulting doctor after doctor and receiving no satisfaction or peace of mind from any of them. That is what is meant by " cancerophobia." No doubt such people exist. They are to be found in other diseases. There is such a thing as syphilophobia. There is such a thing as cancerophobia at the present time. Probably every medical man has seen instances of it : of people who, believing that cancer is necessarily an incurable and fatal disease, live in constant dread of it, and will not be convinced that they have not got it although presenting no sign of it whatever. Such people are not normally constituted, and if they did not imagine they had cancer they would almost certainly believe with equal conviction that they had some other disease. The question is, would the substitution of a message of hope for the despair which exists in

the public mind to-day increase the dread of the disease ?[1]

Would the knowledge on the part of the public, that cancer was not *per se* a fatal disease, that if removed early it was not such a hopeless affair after all, increase their dread of it ? One would have thought it would have had exactly the opposite effect. So much depends on what it is proposed to teach the public. No one in his senses would suggest an endeavour to teach them much about cancer. It would be a hopeless task to begin with, and would serve no helpful purpose if it were possible to accomplish it. In some situations it is not curable by any operation ; in others the early symptoms are so obscure that to attempt to educate lay people in them would be hopeless. All that is suggested is that the public should know certain facts about the disease in a very few situations, which are fortunately very common situations and fortunately also situations in which it is capable of early removal. They are facts of the simplest character—very few in number ; unmistakable by the patient ; not capable of distortion by any effort of the imagination. I propose in the following chapter to give in detail what these facts are.

In view of the veritable " hot air " one has heard

[1] The Society for the Control of Cancer has been in existence in America for 10 years, and very drastic and impressionist means are adopted to educate the public in its early signs. I am informed on most reliable authority that there is no sign whatever of any increase of cancerophobia in that country as the result of it.

talked of this fear of alarming the public, it is refreshing to read in the volume just published, "Cancer Research at the Middlesex Hospital," the views of those who probably see and know more about cancer than any other body of medical men in this country. Under the heading "Education of the Public in Matters Relating to Cancer," the article begins by quoting some remarks from my Presidential Address at the British Medical Association at Portsmouth, 1923, which I reproduce here :—

"The most important fact we know about the disease is that in its beginnings it is local, and that its course is a centrifugal spread from its local point of origin.

"Is that knowledge anything like as productive as it might be? Undoubtedly it is not. Notwithstanding the fact that cancer has been cured over and over again by modern operation—a fact which in itself proves that it is curable—yet I believe patients come no earlier to the doctor with it than they did thirty years ago, though time is the very condition of the only cure we possess for it. Many medical men, and I confess I am one of them, are of opinion that there is considerable room for improvement in this direction. Without resort to any sensationalism, some obvious steps could be taken to spread the knowledge of a few very simple facts about cancer. This would give a by no means unwarranted ray of hope to the public, and would enable some of the victims of this terrible disease to apply in time to have at all events a chance of

cure or freedom from recurrence, whichever you like to call it."

The article then goes on to say :—

" There are some who believe that all knowledge about cancer should be restricted to the doctors, and that the less the public knows about it the better. It is argued that education of the public, even in a few elementary facts about the onset and early stage of cancer, will create such widespread uneasiness as to do more harm than good. This view has not been shared by the authorities of the Middlesex Hospital. Among the things that the war, and particularly the London air raids, have demonstrated beyond cavil may surely be placed the fact that the British nation is constitutionally incapable of panic. The emotional stresses of the war were responded to by a sudden and amazing rise in national efficiency which was almost the only token of their presence. That such a people will be ' rattled ' by the dissemination among them of a knowledge of the symptoms likely to attend incipient cancer is a doctrine too ridiculous for words. The difficulty rather is, and always will be, to arouse the nation to a sense of any danger not absolutely imminent. Were it otherwise, the cause of cancer research would need no pleading !

" Dismissing the unconvincing reasons against, let us now consider the positive arguments in favour of the spread of public knowledge about cancer. We are met at the outset by the sinister fact that a large number of cases of cancer first seek advice when already their plight is hopeless. This is not

a mere subject for regret, but an occasion for action. In America a considerable proportion, about 20 per cent, of cases of breast cancer reach the surgeon before the glands in the arm-pit are enlarged. In this country the corresponding figure is less than 10 per cent. The chance of cure is known to be much greater if the disease has not reached the arm-pit. Obviously, therefore, a considerable improvement in results is at once attainable in this country if the patients will seek earlier advice."

These are weighty and commonsense words. Why in the world should the public be any more alarmed by knowing something about cancer than of tuberculosis, syphilis, appendicitis, or any other disease ? If that knowledge can be proved to be useful, nay more, if it can be proved that it would result in the saving of many lives, I would put the question as bluntly as this : " What right and what justification has the medical profession in withholding it ? " I invite those who adopt this namby-pamby attitude to supply the answer.

CHAPTER X

WHAT THE PUBLIC SHOULD KNOW ABOUT CANCER—DANGER SIGNALS

IN any effort to supply information to the public which may be helpful to them, the first thing should be to endeavour to uproot the fallacies described in Chapter III ; the next to put them in possession of the cardinal facts about cancer set out in Chapter IV. Not the least important of the former is the secretive attitude of people towards the disease, owing partly to the idea that it carries some family stigma with it. This mainly arises from the belief held strongly by many eminent medical men of the last generation, and which through their expressed opinions has become public property, that there was a strong hereditary taint in cancer, that it was a family disease. If therefore a case occurs in a family there is a very intelligible desire to conceal the fact. One very obvious reason is that its disclosure, for instance, might prove an obstacle to the contract of desirable marriages either for sons or daughters. To combat this fallacy there is ample warrant for the definite statement that in the light of modern investigation all available evidence goes to contradict the view that hereditary predisposition plays

any important part in the disease in man ; and the fact that should do most to assure the public on this point is that Life Insurance Companies demand no increased premiums because a member of the family, say a father or mother of the insured, has died of cancer. This should be a very convincing and satisfying argument. There is therefore on these grounds no longer any necessity for the policy of " hush " about cancer. There is no reason to speak of it with bated breath as though it were some disease beyond the pale. We should encourage, in fact, people to come out into the open and talk about it with as little restraint as they do about any other familiar disease. Our aim should be, above all, to get the cures talked about and spread abroad, not hushed up and concealed : the cases that have been operated upon many years previously and have never had any return.

Another fallacy we should endeavour by every means possible to combat—and the propagation of information of actual cases that have been cured would be more convincing in this direction than anything else—is that cancer in removable situations is *per se* a hopeless disease. It is an opinion no longer entertained by the medical profession, and there are hundreds of cases to prove its falsity. Instances of these have been given in Chapter VI. We must therefore endeavour to get the idea of hopelessness about cancer out of the mind of the public, to substitute for it a message of hope ; a knowledge of the fact, for it is a fact, that cancer if

removed early enough is curable ; a knowledge of the fact that it is almost entirely owing to the delay in seeking advice that so few cases are cured ; finally, that a substitution of early treatment for late treatment would undoubtedly put a very different complexion on its supposed fatality and would result in the saving of many lives. There is ample and undeniable warrant for this much, without incurring the charge of making promises not justified by the evidence. We have the evidence. We should have the courage to push that evidence to its logical conclusion, that cancer is curable ; but in doing this it should be emphasized over and over again, on every occasion, in season and out of season, that the condition of cure, removal at the earliest possible moment, rests with the patient himself after he has been put in possession of the information which will enable him to apply in time.

The third fallacy we should endeavour to destroy root and branch is that in its early stage it is a painful disease, or gives rise to any feeling of ill-health. It is the arch fallacy of all. Nine times out of ten when a patient applies with advanced cancer and is asked by his doctor why he did not come sooner, although he will frequently admit he knew all the time there was something wrong, the answer is : "As I felt perfectly well and had no pain, I did not think it could be anything serious." And it is not till it does cause pain or a feeling of ill-health that the patient as a rule applies. It may be absolutely stated that *in no position of the body*

does cancer when it is early ever cause either pain or ill-health ; it is only when it is becoming advanced and incurable that it causes either. This ignorance of the insidiousness of the disease must be fought tooth and nail. Because experience proves, as might have been naturally expected, that it nearly always results in the victim of cancer missing his only opportunity of saving his life. So much for the fallacies.

A general feature of the disease that people should become familiar with is that it is confined to the last half of life. From 35 to 40 years onwards is the cancer age. This is not literally correct. Every medical man knows that cancer exceptionally occurs earlier than this, occasionally much earlier, but the precise knowledge required of the medical profession is not what we want to impart to the public. They only need broad general and easily grasped truths. If the reader will refer to the figures in Chapter IV, page 49, he will see that the mortality from cancer between the ages of 15 and 45 is quite insignificant compared with that at 45 and after. To broadcast the knowledge that from 35 to 40 years onwards is the cancer age, and that at this age people should be on guard against it ; further, that the young and those in prime adult life need not know anything about it is correct enough for our purpose. Our educative effort should include only that part of the public which has reached middle-age and over, except in the case of those, e.g. midwives, nurses, district visitors, etc., who are

brought into contact with the people and may be called upon to act as their instructors.

Lastly, there is the fact that to some situations of the body where cancer occurs, constituting roughly one-third of all in males, and one-half of all in females (cf. Chapter IV, page 69), certain conditions attach which form the keystone of the educational arch. These are two :—

(1) That they are situations in which unmistakable symptoms or signs must early obtrude themselves on the notice of the victim of the disease, and of which he cannot for long fail to be cognizant.

(2) That they are situations in which, if the patient seizes the opportunity which is presented to him, satisfactory removal, and therefore cure, is possible.

It is to the situations which fulfil both of these conditions, and to these only, that educative effort should be directed. It is therefore for these only that the danger signals should be hoisted. The situations are given in Chapter IV, page 68. I shall take those for females first, then those for males, and lastly those for both sexes.

(1) Females

A reference to the figures will show that cancer of the breast and womb are far the most important situations for females, constituting in them about

three-quarters of all cases of the disease, which fulfil the aforesaid conditions.

(a) *Cancer of the Breast*

The danger signal is *a lump, or tumour, in the breast after* 35 *or* 40 *years of age*. If there is no lump, it is not cancer. If it is doubtful whether there is a lump or not, a competent medical authority can always confirm or deny a suspicion of it. If there is a lump, there is a considerable probability of its being cancer. There is no other danger signal whatever. There is no pain or feeling of ill-health. The one and only sign is the lump.

I have said there is a great probability of its being cancer. According to the records of the Middlesex Hospital, extending over a period of 10 years, cancer forms about 70 per cent of all varieties of diseases of the breast. Again, an eminent authority writes : " Ninety per cent of the swellings of the breast in elderly women are cancer." Any lump in the breast after 40 is far more likely therefore to be cancer than anything else. If competent advice is sought at once, it is probably curable cancer ; if there is delay, every day of it diminishes the chance of cure, and if the delay is long there will be no chance ; in other words, prompt action invites safety, hesitancy spells disaster.[1] To repeat : the danger signal is *any* lump in the breast after 35 or 40 years of age ;

[1] The records of the Johns Hopkins Hospital give 70 per cent of cures in early cancer of the breast (cf. p. 98) : in less early cancer, 20 per cent ; in late cancer, none.

the lifebuoy is " seek competent medical advice at once." The warning of danger is quite unmistakable, the way to meet it equally so. There is one other sign which occurs in a small minority of cases, and this should be taken as prompt notice of as a lump. It is any discharge from the nipple. Precisely the same ready action should be taken, and competent advice should be obtained immediately. This is what every woman in middle life should know (not, unfortunately, " what every woman knows ") about cancer of the breast. The knowledge is definite, simple, not capable of any misinterpretation. It is knowledge which if acted upon would undoubtedly result in the saving of numbers of lives. It is knowledge which a woman cannot act upon unless she has it. It is knowledge, therefore, that women should be put in possession of, and the medical profession is not doing its duty by the public in withholding it. If women do not act upon it, that is their own affair. But can it be doubted that most women, if in possession of it, would use it ?

In this connection an article in the Middlesex Hospital Reports, entitled a " Statistical Study of Malignant Diseases of the Breast," says : " It is, of course, impossible to adopt a definite standard measure for the dimensions of a cancerous tumour of the breast, but if we classify as ' small ' growths recorded as being of the size of a ' walnut,' ' pigeon's egg,' ' chestnut,' etc. ; as ' large,' those described as the size of a ' hen's egg,' ' tangerine or

small orange,' ' cricket ball ' ; and as ' very large,' the tumours compared to a ' child's head,' ' Rugby football,' an ' ostrich egg,' etc., we find no great difference between the patients of the middle of the last century and those at the present time. The instances of ' very large ' growths are not quite so numerous as before, though they have by no means disappeared. But it is surprising that tumours of ' large ' size, though not in a majority, are still very frequently first seen on admission. How great a diminution of cancer mortality could be brought about if patients were always radically treated while the growth was still ' small ' it is impossible to say ; but a marked improvement might be anticipated." Fifty years ago, when cancer was considered a disease of the blood and incurable ; when every case operated upon shortly returned and killed its victim, it did not matter much how long she put off consulting the surgeon ; now, when everything we know of it points unmistakably to its being in the beginning a local disease ; when, if removed early, it has been proved over and over again to be curable ; when the very condition of cure is early removal, there is yet the same disastrous delay in seeking advice, the same procrastination as 50 years ago ! It is surely time some effort was made to alter this state of things ; some attempt organized to enable our patients to comply with the condition of cure.

The matter is so important for women that I further emphasize it by quoting in full the remarks of Dr. Joseph Colt Bloodgood, of the Johns Hopkins

University, Baltimore, a world-known surgeon, in an address delivered in San Francisco (June, 1923) at a public meeting of the American Society for the Control of Cancer and California State Medical Society. It is headed " Cancer Facts and Hopes." It says :—

" When do we cure cancer ?

" Why do we fail to cure cancer ?

" The crucial question to-day between the doctor and the patient is, ' How long have you been ill ? When did you first feel the lump ? '

" Fortunate is that patient who can answer—' Yesterday,' or better, ' To-day.'

" Correct information is ' first aid ' in the cancer attack.

"*The known duration of the disease. When we study our* 33,000 *histories (records) of patients in the Surgical Pathological Laboratory of the Johns Hopkins Hospital, since* 1890, *and search for the chief controllable factor of our failure to cure—it is the duration of the disease known to the patient and recorded by the answers. 'How long have you been ill? How long have you felt the lump? '*

"*A lump in the breast.* When the lump is cancer, the woman with correct information who seeks examination at once has the best chances of a cure —each day, week, month, year of delay reduces that splendid opportunity of a permanent cure. No woman can distinguish (or be taught to distinguish) between the ' cancer lump ' and the lump which is not cancer.

"*What happens to the uninformed woman?* In our records between 1890 to 1900, among women patients who came to the clinic—for lumps in the breast—in more than 99 per cent a definite lump was found, and these women had felt this lump for months or years.

"*What happens to these patients?* In less than 15 per cent the lumps proved to be benign (not cancer)—all lived. In almost 90 per cent the lumps were cancer, and less than 20 per cent were cured.

"*What has education and correct information done for the women coming to this clinic since* 1920? In more than 50 per cent, after an examination, they have been told: 'You have nothing serious in your breast. The lump you feel, or think you feel, is *not* a serious lump; it is only part of a normal lumpy breast. Go home, be happy. Should you feel a distinct lump, return at once. You run no more risk of cancer than any other woman who has never been conscious of any trouble in the breast.'

"In the remaining 50 per cent the lump the women felt was a real (distinct) lump.

"When the lumps were removed by operation, in 50 per cent the lump was not cancer. The patient rarely lost her breast and was permanently cured. In the others, 50 per cent of those operated upon, or 25 per cent of all examined, the lumps were cancer—and about 50 per cent of those whose lumps were cancer will be cured.

"*What has the correct information done for women who have felt a lump in the breast?* It has increased

their chances of a cure, when the lump is cancer, from less than 20 per cent to 50 per cent.

"*The results of the 'educational effort' of the American Society for the Control of Cancer and the Medical Profession.* The records of the patients in the laboratory of the Johns Hopkins Hospital show this improvement in all groups of cancer and other diseases, as illustrated by figures just given for 'Cancer of the breast.'

"We have the evidence that correct information is getting to the public and they are acting intelligently and reaping the benefit. *Can more be expected?* Yes—our records since 1920 show that correct information has reached but a small minority of the people, even in those localities where the medical profession has made the greatest educational effort.

"For 25 years our studies show that a woman with a 'cancer lump' in the breast has 70 per cent chances of a cure *only* when the cancer is still confined (local) to the lump in the breast and has *not migrated* or invaded the axillary glands (lumps in the arm-pit). When these glands in the arm-pit are invaded by the cancer, the chances of a cure fall to 20 per cent. I have just told you that the educational effort so far has only increased the cure of 'cancer lumps' in the breast from 20 per cent to 50 per cent.

"Women who feel a lump in the breast to-day and seek an examination to-morrow can be assured of at least 70 per cent chances of a cure if the lump proves to be cancer.

" I have just informed you that when you experience any trouble in the breast and seek examination at once, the chances are that your breast trouble will not turn out to be cancer in at least 75 per cent.

" What the permanent cure of ' cancer lump ' in the breast will be when all women seek an examination at once we do *not* know; but we *do* know that it will at least be 70 per cent.

" If the present figures are correct and there is no improvement in traffic control, women of this country will run more risk of death from an automobile accident than a woman with correct information of death from cancer of the breast.

"*The message to the people from the American Society for the Control of Cancer, representing the medical profession*, is simple. It is based on assured evidence, and at present it offers the only possible increased chances of a permanent cure of cancer.

"*Go to your doctor* (medical adviser), and when he asks you, ' How long have you been ill ? When did you first feel the lump ? ' it will be to your benefit when you can truthfully answer, ' *Yesterday*,' or '*To-day*.'

" *The cure of cancer* and most diseases to-day depends chiefly on shortening the duration of the symptoms known to the patient."

Again, the same eminent authority in an address on " The Diagnosis of Early Breast Tumours," read before the Section of Surgery at the Seventy-fourth Annual Session of the American Medical

Association, San Francisco (June, 1923), under the heading " Effect of Education on the Character of Breast Lesions in Large Surgical Clinics," says :—

" It is to be remembered that in the Johns Hopkins Hospital Surgical Clinic the duration of the lump in cancer of the breast has always been considered the most important factor in its cure. Dr. Halsted frequently spoke of this to his associates and to his patients and their physicians. Our first early cases of cancer of the breast came from those getting this correct information. At the American Medical Association session in 1910 in St. Louis, I emphasized that the most important factor in the cure of cancer, no matter what its locality, was the known duration of the symptoms or the lump, and to reduce this duration of the disease the profession and the public needed correct information. In 1913 there appeared articles in magazines by Samuel Hopkins Adams, the direct work of my associate Cullen of Baltimore and of his committee. Then followed the organization and educational efforts of the American Society for the Control of Cancer.

" The effect of these educational efforts in regard to the character of lesions of the breast as observed in the records of the Surgical Pathological Laboratory of the Johns Hopkins Hospital seemed almost incredible. I published them briefly in March, 1922.

"At that time, since 1920, in about 50 per cent of the women who were referred to the clinic because of some breast complaint, nothing serious was found

on examination and no operation was performed. Of the remaining 50 per cent in whom there was a definite lump, the lump proved to be cancer at operation in about one-half. Therefore, of 100 women examined in the clinic for breast lesions, in only about 25 per cent did the lump prove to be malignant.

" Let us compare these figures with those of the first 10 years—up to 1900—observed in the same clinic. Less than 1 per cent were not subjected to operation ; the remainder had definite lumps of a long duration known to the patient, and, when subjected to operation, almost 85 per cent were cancer.

" I have also observed the good effects of this educational effort when I have given clinics throughout the country. In the majority of the cities, among the women with breast troubles brought in for diagnosis the lesion was benign."

(b) *Cancer of the Womb*

The danger signal is the same in all cases of early cancer in the womb, a disease which may attack women at any time from 35 to 40 years of age onwards. It is almost always *a slight discharge of blood or a watery discharge tinged with blood occurring at irregular times*, i.e. at times apart from the monthly period, frequently after slight interference, such as the use of a douche, intercourse, etc.

Occasionally, but quite exceptionally, a considerable bleeding may be the first sign. As in early

cancer elsewhere, there will be no pain whatever and no loss of general health.

Now, women come to what is called the change of life round about 45 years of age, sometimes 2 or 3 years earlier, sometimes a little later. The regular monthly period then ceases. Sometimes it stops quite suddenly, sometimes irregularly, i.e. she may miss 2 or 3 months, see a period, then miss a few months, see another, and so on till it finally stops. But once it has finally ceased, say for a year or two, it cannot be too forcibly emphasized that there is no such thing in existence as a return of the change of life. It is very important to lay stress on this point, because frequently women come with advanced cancer of the womb many years—5, 7, 8, or 10—after the change of life, and when asked why when they first saw the bleeding they did not consult a medical man, invariably say they thought it was " a slight return of the change of life." There is no such thing. This is a fallacy which must be ruthlessly uprooted in any educative campaign against cancer of the womb. And the reason it must be driven home that such a thing as the return of the change of life does not exist is that, if this is thoroughly understood by women, early cancer of the womb occurring after the change, say after 50 years, should be easy of detection every time.

The sign is there, the woman cannot fail to be cognizant of it—slight bleeding or a watery discharge tinged with blood. Having been educated to the fact that this cannot mean a return of the change,

she will know that her only safety lies in consulting at once a competent medical authority, who can always tell her, *after an examination, and never without*, whether she has early cancer of the womb or not. I do not go so far as to say that this sign invariably means commencing cancer, no more than that every lump in the breast after middle life is cancer, but it is very likely to be commencing cancer, and, if it is, it is the only sign she will have of it. Surely to find out for certain at once, at the only time she can be cured, is worth an examination; not to be put off by some old woman who is sure to tell her it is only a return of the change of life. As I have said before, cancer of the womb occurring after the change should be caught early every time. It is only the knowledge by women of what the danger signal probably means and the will to act upon it that is required.

In the event of cancer occurring roughly between the ages of 35 and 45 years, i.e. up to the time of the change, there is obviously more room for error, and especially if it occurs round about the time of the change, because, as I have stated, some women become irregular in their periods for a year or two before they finally cease. Now, most women are regular and know when to expect their normal period, and the appearance of the danger signal, i.e. slight irregular bleeding apart from the period, and while they are still seeing their normal periods, is unmistakable and is quite different from anything they have previously known. It should therefore,

if they are educated up to the possible meaning of it, never fail to at once awaken their suspicion and induce them to seek their only line of safety, viz. the consultation of a competent medical authority, who again, *after examination, and never without*, will always be able to settle the matter for them. These slight irregular bleedings occurring *at the change*, and when they may be seeing their normal periods at irregular times, are also nothing like the normal change, and should lead them to take the same course. The whole thing is a matter of educating women about a function and its manner of cessation, which is peculiarly their own. The best advice to give them, and which covers all error, is that if they see any deviation whatever from that which, from their past experience, they know to be their normal function, to seek without any delay medical advice, remembering always that slight bleedings or a watery discharge tinged with blood at irregular times is most suspicious of commencing cancer, and that this can only be confirmed or excluded by an adequate examination. To this should be added—never, on any occasion, to consult and take the opinion of a woman friend or nurse or midwife, etc., who in the state of ignorance of the disease which unfortunately prevails at the present time is almost sure to make them miss the only opportunity of saving their lives by the consolation that it is nothing, only what they may expect at their time of life, the change of life coming, or a little return of it.

I have gone very fully into this matter and repeated the warning time and again, because there is no part of the body where early cancer is so frequently missed through sheer ignorance of what women should know about their own function. A very eminent gynæcologist writing in the " British Medical Journal," says : " The reasons why women neglect to apply early for medical relief are many. Modesty is occasionally suggested, and sometimes the want of the necessary means. Much more commonly the patient confides her symptoms to old and inexperienced women, to neighbours or to nurses, and is only too ready to be persuaded that everything is due to the change of life, and that with a little time and patience all will be well. But by far the most important reason for delay is the widespread ignorance which prevails about the early symptoms of cancer," etc.

And cancer of the womb is curable by early removal. It has been cured over and over again. The bar to cure is ignorance and lack of education. Cancer of the breast and womb are far and away the most vital for women to know about. The disease very commonly attacks these two regions and accounts almost entirely for the higher cancer mortality among women than men. Between the age of 35 and 45 years three times as many women die from cancer as men ; between the age of 45 and 55 twice as many. This increased mortality, moreover, is dependent on its occurrence in situations which fulfil the conditions of cure, viz. that it is

recognizable early and capable of satisfactory removal. It is worth while, therefore, for women to know something of early cancer and its signs here.

(2) Males

Just as there are two regions in women peculiarly liable to attack by cancer which fulfils the conditions of cure, there are two in which the disease complying with the same conditions attacks men, one with extraordinary frequency, the other comparatively rarely. They are the mouth and its neighbourhood, and the testis. The first includes the lip, tongue, mouth, tonsil, and jaw. A reference to the figures in Chapter IV, page 68, will show how much more frequently cancer attacks men than women in these regions. Taking them altogether, there are only 258 deaths among women as against 2482 among men. It is, in other words, ten times more frequent in men than in women. This has been attributed, and almost certainly with a good deal of truth, to the fact that in men these regions are subjected to far more potent and frequent sources of chronic irritation in the shape of want of cleanliness, syphilis, alcohol, and tobacco than in women. There is therefore great room, as will be more fully explained later, for the prevention of cancer here among men by a propaganda of education. We are dealing for the moment with its cure, and the danger signals of commencing cancer.

(a) *Cancer of the Lip*

The points to know are that it appears always on the lower lip. The danger signal is *a small sore or crack or scaly patch or a flat warty-looking growth, always occurring on the lower lip* in a man over 40 years of age. It will cause no pain whatever or feeling of ill-health. No man having it can fail to notice it. It therefore fulfils the first condition of cure. If removed early and at once, it is almost certainly curable and will never return. It therefore fulfils the second condition. If neglected, it is just as dangerous as other forms of cancer from the fact that it will tend to spread from its local site of origin to other parts of the body. If, therefore, any man over 40 years of age has anything of this nature on his lower lip which does not get well in a fortnight or at most a month, he should consult a competent medical authority at once. It may not be cancer. But if it is, there will be no other danger signal during the time it is curable. If these simple facts were generally known and acted upon, it is no exaggeration to say that the mortality from cancer of the lip would become insignificant.

With the view of determining what this mortality would be, the author wrote to a distinguished Dublin surgeon who has had large experience in this affection. After regretting that he was not in possession of sufficient data for this purpose, he wrote : " The only general test that I have been able to apply is that some cases return to hospital

with recurrence, and of these there are but few, and those are instances in which, from the advanced state of the disease when operated upon, I regarded recurrences as almost inevitable. Most of my cases are sent by those who would be likely to report to me if recurrence took place. I am strongly of opinion that *lip cancer seldom returns if operated on thoroughly and sufficiently early*."

(b) *Cancer of the Tongue and Mouth*

Cancer may occur anywhere inside the mouth : on the tongue, inside of the cheek, tonsil, etc. It attacks far most frequently the tongue or floor of the mouth. It follows the rules governing cancer elsewhere. It is almost entirely confined to the last half of life. At its commencement it is quite painless and in no way interferes with the general health. It is local at first and capable of cure by removal. But for reasons which have been pointed out in Chapter VII, page 133, it is imperative that it should be recognized and removed with the greatest promptitude ; in other words, the time for cure is short.

The danger signal, as in the lip, is a *small ulcer or sore or patches like daubs of white paint, or a flat warty-looking growth*, occurring most frequently on the side of the tongue, but sometimes in other situations. Very often it starts in a sore caused by the rubbing of a jagged tooth or stump against the tongue. If, when the tooth or stump is removed, the sore does not get well forthwith, it is a matter

which should make the patient at once suspicious and induce him to act without a moment's hesitation. The one and only road to safety lies in his consulting a competent medical authority if any such condition persists, say for a fortnight, without getting well.

It is necessary to draw attention here to a fallacy which exists in the public mind, that an operation on the tongue will cause a deprivation of the power of speech ; for this belief acts as a deterrent in some instances to their seeking early advice. Limited operations for early cancer interfere very little with the power of speech. It is only the extensive procedures required for the removal of late cancer, if it be removable at all, which have any such result. They are also very unsatisfactory from the point of view of a recurrence of the disease. These should be convincing considerations in forbidding any unnecessary delay in this situation. Fortunately, its very position must in every case give the patient an early chance. It is his only chance. Some time ago I met abroad a gentleman who had just a little thickness in his speech. Knowing I was a medical man he told me that four years previously he had had a cancer taken out of his mouth. He said he had noticed a little sore on his tongue for a few weeks which did not seem inclined to get well. It caused him so little inconvenience that, as he said, he thought it *hardly worth while* to show it to a medical man. Nevertheless, luckily for him, he did so. He told me he was never so surprised

in his life as when he was informed it was cancer. He had it out the next day, and was perfectly well four years afterwards. An example worth following!

(c) *Cancer of the Testicle*

The danger signal here is *an enlargement of the testicle*. If a man notices an enlargement of the testicle, and if he has it he cannot fail to notice it, he should consult his doctor at once. If it be cancer, it is the only danger signal he will have of it, and his doctor is the only person who can decide the matter for him. A reference to Chapter IV, page 68, will show that it is a comparatively rare disease, accounting for only 114 deaths.

The above, the lip, the tongue, and inside of the mouth, and the testis are the common localities for men, and it is men chiefly (and in the case of the testicle, men only) who need be acquainted with the danger signals here.

(3) Males and Females

Lastly, there are three situations of the body in which the disease attacks men and women indiscriminately. They are the skin, rectum, and larynx. A reference to Chapter IV, page 68, will show that in all of these men are attacked a good deal more frequently than women ; still, in all of them women suffer sufficiently frequently to make it imperative for them equally with men to be familiar with the warning signals.

(a) *Cancer of the Skin*

In cancer of the skin the patient should, if alive to the meaning of very obvious signs, never miss the opportunity of cure. The disease very rarely, if ever, starts in a healthy part of the skin. Most people have warts or moles or rough or scaly patches, sebaceous cysts, or other minor abnormalities of the skin, and some have scars from previous injuries, such as burns, ulcers, etc., and it is in these that cancer usually starts, especially if they have been subjected to irritation of any kind. For example, a mole may be constantly irritated by a razor in shaving ; or by the pressure or rubbing of a corset ; or, again, a little scaly patch on the skin may be constantly picked at, etc. Now, if people have these abnormal spots on their skins they know they have them, where they are, and what they are like, and what they have been like for years without any change. If, therefore, *they alter in character, by beginning to grow larger, for instance, or to weep or ulcerate*, or if any similar condition appears for the first time on any part of the skin, that is the danger signal. They will experience no pain or feeling of ill-health, but some such change as I have mentioned above will occur. That is all. This warning is simple and obvious, and should, if universally known and understood, always ensure the early removal of cancer of the skin. And if it did, there would, practically speaking, be no mortality from the disease in this situation. Yet if we

turn to Chapter IV, page 68, it will be seen that in England and Wales in 1921 no fewer than 719 men and 401 women lost their lives from it. It is surely about time something was done to attempt to rectify this state of affairs.

(b) *The Rectum* (*Lower Bowel*)

The disease here is almost always mistaken for piles. When a patient applies and gives a history extending over a period of many months, so characteristic that the medical expert can be almost certain before he makes an examination that he is going to find cancer of the rectum, and is asked why he did not come sooner, the almost invariable reply is, "I thought it was a slight attack of piles." Nevertheless, the diseases are certainly not much alike in their symptoms, except that in both the patient may see blood. First of all, cancer is confined to the last half of life, whereas piles may occur at any age ; so that the very fact of the symptoms first appearing after 40 years should alone put the patient on his guard. Then in piles the patient frequently passes bright blood with his stool, sometimes in large quantity, and when he goes to stool something often comes down which he has to push up again before he is comfortable ; also this something (which is his piles) may come down when he is walking or taking other exercise, and he has to push it up again to obtain relief. The symptoms of cancer of the rectum are quite different to this. The patient feels he wants to go to stool. He

passes perhaps a stool mixed with blood and slime ; often only a little blood and slime and wind alone. Soon after he feels he wants to go again, and the same thing happens. This commonly happens many times a day. Having gone to stool once he wants to go again and again, every time with little relief except the passage of a small quantity of blood and slime and wind. This chain of symptoms is very characteristic of cancer of the rectum, and has very little resemblance to those of piles. If present, the patient should at once consult his doctor, who will be able, *always after an examination, and never without*, to find out whether he has cancer or not. Pain does not occur in early cancer of the rectum as in cancer elsewhere. To be acquainted with the possible meaning of the symptoms I have detailed above, which are very clear and definite, and to act at once on their appearance, is the only road to safety in this disease.

(c) *The Larynx* (*Voice Box*)

There are two situations of this disease in the larynx, known to surgeons as intrinsic and extrinsic cancer. It is only in the former position that operative removal is to any degree satisfactory. And it is only with this position that I am dealing in speaking of cure. The danger signal to the patient is the same in either case, and all he has to do is to take notice of it. Whether it falls into the favourable or unfavourable class is a matter entirely for the decision of the expert whom

he consults. The danger signal *is hoarseness and loss of voice*. These, of course, may occur with a common cold, and most people have experienced them some time in their lives, many more than once. This experience of it has also shown that in a week or two it passes away with the cold, and the voice becomes as clear as it was before. But in cancer the hoarseness and loss of voice persist, or if they pass off and become better for a while they return. The point is that the symptoms persist, and anybody who has suffered from this persistence, or return of symptoms, would be satisfied in his own mind that he had not got an ordinary cold, such as he had possibly experienced on previous occasions. He would in all probability also be over 40 years of age—a corroborative danger signal. Under these circumstances his only safety lies in consulting at once an expert laryngologist, who alone can decide whether it is cancer or not, and, if it is, whether it falls within the favourable class or not. If it does, the chance of cure is remarkably good, better than in almost any region of the body, as shown in a previous chapter. A distinguished London laryngologist, in an address before the Tenth International Congress of Otology held in Paris in 1922, says of this disease when operated upon early: "The operative death-rate should be nil; a serviceable voice can be promised, and there is every prospect of freedom from recurrence." The danger signal is hoisted early for the patient. All he has to do is to

take notice of it and he can almost certainly be cured.

If the reader will now turn to the table in Chapter IV, page 68, he will see that the danger signals in all of the localities mentioned there have been given with the exception of those in cancer of the penis and scrotum in men, and cancer of the vulva and vagina in women. Cancer of the penis and scrotum and vulva are nothing but cancer of the skin of those parts of the body, and there are no special danger signals apart from those of the skin generally; and cancer of the vagina will in its commencement give rise to the same signs as cancer of the womb. The ground has therefore been covered. It is to these localities that the educative campaign should be chiefly, if not entirely, directed for the following reasons :—

(1) They are all localities in which the danger signal *must*, with rare exceptions, be evident to the patient at an early period of the disease. I say with rare exceptions. For instance, a woman with a large breast might have a lump in it for some time without discovering it : cancer of the womb may exceptionally advance to a considerable extent before giving rise to bleeding, and so on. These are just the few unfortunate people who might not be made aware early of the seriousness of their condition. They are the few exceptions which break every rule.

(2) They are all localities in which the danger signal is simple, definite, and unmistakable.

(3) They are all localities in which, if the danger signal appears, the course to follow is clear.

(4) They are all localities, therefore, in which the patient, if educated to the significance of the signal, will know what to do and will be enabled to comply with the condition of cure—early removal.

(5) They are all localities in which the disease in its early stages can be removed and the patient can be cured. Moreover, and more important, if the reader will refer to Chapters VI and VIII, he will see that they are all localities in which the disease *has been* removed and the patient *has been* cured over and over again.

A perusal of the danger signals in the various regions will show that the information proposed to be given to the public consists of only a very few facts of the most straightforward character. There is nothing abstruse about it, nothing capable of any misapprehension whatever. There is no pretence of educating the people about the disease cancer. What possible objection, cancerophobia or any other, can there be to people knowing these simple things ? Why any greater objection to their knowing this much about cancer than they know about certain broad features of tuberculosis, venereal disease, or any other disease, and the necessity of consulting a doctor as soon as they suspect them ? For a generation we have been endeavouring to din into the public the necessity of sending for the

doctor at once, and of early operation in appendicitis to save life. And we have in a great measure succeeded. The news has gone round, and few educated people, at all events, nowadays fail to send if they suspect it, and, if told they have it, raise any objection to an immediate operation. Why in the world should we not give the sufferers from cancer similar information for the same reason, and take the necessary steps to enable them to profit by it? The objections sometimes raised to the knowledge of these few simple facts are quite beside the point. The signs in the localities mentioned are there; they are bound to be noticed by the patient. He requires to know what they mean and what to do. If there are any valid objections—and I confess I know of none—they should be of a very weighty character to warrant the medical profession in allowing hundreds of lives to be sacrificed annually which could undoubtedly be saved. And that is exactly and indubitably what is happening. The matter to be told the public, as detailed in this chapter, is vital for the public to know. The medical profession only can provide the knowledge. As to the best means of endeavouring to give the information, that may be a matter of opinion, and will be dealt with in a future chapter.

Before concluding this subject, a few words should be said about *cancer of the stomach and intestines*, which is very common in both sexes. Cancer of the stomach accounts for no less than about one-

quarter of all the fatal cases; cancer of the intestines is about eight times less frequent than that of the stomach. The reason I have omitted these from the list of cancers to which educative effort should be mainly directed is that the disease in these regions does not—and I fear never can—fulfil the first condition I have laid down, viz. that signs must obtrude themselves early and unmistakably on the notice of the patient. So many symptoms are included in the omnibus "indigestion," so many different interpretations are put upon it, and so many people suffer from it more or less, that I believe it would only lead to confusion to attempt to give reliable symptoms, if there are any, which would enable people to suspect they have early cancer in these regions. The early symptoms themselves are, in fact, frequently so indefinite, the insidiousness of the onset of cancer here conforming to its universal rule, that from these alone the physician himself has often great difficulty in arriving at a conclusion. I would only, therefore, tentatively suggest that if people over 40 years of age, especially those who have always had what is called a "good digestion" and have hitherto been able to "eat anything," begin to suffer from pain and discomfort after food, or, again, those who have always been regular in their bowels begin to suffer persistently from irregularity, increasing constipation, or sometimes constipation and sometimes diarrhœa, with colicky pains, they should not neglect to seek medical advice without delay. Because

nowadays, by X-ray and laboratory methods, very satisfactory internal examinations can be made, and definite conclusions can very frequently be arrived at. Cancer of the stomach and intestines, especially the latter, is quite capable of cure by early removal, and has been cured over and over again. But the difficulties of securing early removal are undoubtedly great, and I believe any attempt to go further than these broad general directions might make confusion worse confounded. This is the one thing to be avoided in any educative effort against cancer.

CHAPTER XI

WHAT THE PUBLIC SHOULD KNOW ABOUT THE PREVENTION OF CANCER

THE last chapter has demonstrated how people should be enabled by suitable instruction to profit by the knowledge of the significance of a few very simple facts, if they be unfortunate enough to be attacked by cancer in certain localities which are, as it happens, very common sites of the disease. Any educative campaign would, however, fall short of its objective if it did not approach quite another aspect of the cancer question, viz. its prevention. In some situations it is unquestionably, in a great measure at all events, a preventable disease. The evidence of this lies in the fact that in some localities which are prone to it, if certain associated circumstances are not present, the disease does not appear ; in others, if similar associated circumstances are withdrawn, the disease itself tends to disappear. Perhaps the best example of the first statement is the fact that cancer of the neck of the womb only occurs in women who have borne children. There is therefore some circumstance associated with the fact of bearing children which leads to the subsequent development of cancer in this region. Again,

to take a structure which is common to both sexes, the lower lip, cancer here is almost exclusively confined to men. And further investigation reveals the fact that its victims are very frequently pipe-smokers, and, further, mostly clay-pipe smokers. In the rare instances in which the disease occurs in women, the habit of pipe-smoking is usually in evidence. There is therefore the circumstance of pipe-smoking, and especially clay-pipe smoking, associated with the development of cancer of the lip. As an illustration of the statement that if certain circumstances associated with the development of cancer are withdrawn the disease tends to disappear, is the fact that chimney-sweep's cancer of the scrotum, formerly very common in England, has since the introduction of the long brush for sweeping chimneys become far less frequent—is, in other words, disappearing. Examples could easily be multiplied. Now, the circumstances in every instance concern the third fact about cancer noted in Chapter IV, viz. its almost invariable, if not invariable, association with chronic irritation or injury of the part of the body in which it occurs. This is so constant a feature of it, that it has led some to the belief that injury or irritation *per se* is the actual exciting cause in starting the cancer process. Whether this is so, or whether it is merely a condition predisposing to the development of the disease in any given locality, there is no doubt that it is such a powerful contributing factor that if we could eliminate it we should in all likelihood get

rid of the disease altogether. It is at least certain we should greatly diminish its incidence. If women no longer bore children, cancer of the neck of the womb would disappear ; if men no longer smoked pipes, and especially clay pipes, cancer of the lip would in a great measure vanish, just as chimney-sweep's cancer is vanishing, and for a similar reason. The actual source of irritation has not been narrowed down in every instance so closely as in these regions, and, as a matter of fact, it is very probable that in some it is of a multiple character. For instance, the female breast is subject to many obvious sources of irritation, arising out of its functional activities from puberty onwards, the lactation process, etc. ; to injury from its size and prominence. Cancer in it is very common ; whereas in the male breast, which, although identical in structure, is not subject to these influences, the disease is hardly ever found. The associated circumstance, or circumstances, as the case may be, therefore become all-important factors in the onset of the disease. A little consideration will show that they provide, therefore, very valuable clues to its prevention in various regions which are known to be common sites of it, and which are at the same time subject to very obvious sources of irritation ; and it is by educating the public in the avoidance or the lessening as far as possible of these that the prevention of cancer is to be sought. That prevention is better than cure needs no stressing ; that cancer in a great measure could be prevented cannot be

stressed too often. Whatever objection may exist in the minds of any to informing people about the disease itself, none can possibly be raised to their education in the prevention of it, more especially as the advice to be given mostly concerns personal hygiene and care and cleanliness, which are desirable on grounds altogether apart from the question of cancer at all. As in the cure of cancer, so in its prevention, the problem is definitely a personal one and can never be anything else. It is quite unlike many other diseases, in which the control is provided by the public sanitary authority. You can legislate, for instance, for the prevention in the community of typhoid fever or smallpox; but you cannot legislate for dirty mouths, or excessive smoking, or neglected discharges from the womb, etc. You can only educate. The individual in this case must be his own sanitary authority. But he cannot fulfil this function unless he has the requisite knowledge. Just as the previous pages have shown that the public, if accurately informed, could do much to defend themselves against the disease itself, the following will indicate how they could by their own personal efforts protect themselves in a great measure against its onset at all.

The shunning of cancer and everything that has to do with it, even to the mention of it, has in the past been mainly responsible for its continuing its ravages unchecked. No offensive has ever been conducted against it,[1] nothing done to meet it and

[1] Except during the last 10 years in America.

beat it, nothing but slinking away from it and hiding our heads in the sand.

(1) *Cancer of the Breast*

On very little consideration it is obvious that the female breast, one of the commonest sites of cancer, is, in various ways throughout life, subjected to injury and irritation. Thus it suffers in this way possibly even from the changes consequent on its normal functional activities in connection with lactation, certainly from those due to errors of lactation, such as unduly prolonged lactation, insufficient lactation, etc. It is liable to inflammation and abscess resulting from lactation, and to soreness and cracks of the nipples, in connection with suckling. It is apt to be squeezed and irritated constantly by ill-fitting corsets and tight lacing. From its exposed position and size it is, again, liable to blows and injuries of various kinds. In many such ways the breast is a part of the body which is subjected to continued injury, and, with the knowledge that continued injury is somehow causally connected with cancer, it is not surprising that this organ should be so frequently attacked by it.[1]

What can be done to prevent cancer developing here lies in a practical application of the foregoing

[1] It is difficult to reconcile some of these influences with the fact that cancer of the breast is more frequent in unmarried than married women. Possibly the denial of its normal functional activities may in some way act as a source of irritation or lead to its early degeneration.

considerations. Care should be taken that the lactation process is conducted in as natural a manner as possible under medical supervision. Women should not suckle too long, and, on the other hand, if they are unable or unwilling to suckle at all, attention should be paid to the disappearance of the milk under medical advice, and to the avoidance of inflammation, abscess, etc. Also the nipples during lactation should be kept carefully clean. If they become sore or cracked they should be medically attended to, and they should not be allowed to remain in a chronically inflamed or irritable condition. One form of persistent soreness and irritation about the nipples, to which attention was first called by the late Sir James Paget, is an almost certain forerunner of cancer.[1] Women cannot be expected to recognize this themselves. They should therefore be cautioned that any kind of soreness or irritation of the nipples is a condition for which they should seek skilled advice.

Again, with the view of avoiding another source of irritation of the breast they should be careful that their corsets so fit as to cause no uncomfortable pressure or squeezing. Injuries and blows are accidents and cannot be avoided ; but the continued pressure and squeezing of the breast by ill-fitting corsets can and ought to be avoided.

Dr. F. L. Hoffman draws attention to the fact

[1] This has recently been called in question. It is fairly well established that in most, if not all, of these cases cancer in the substance of the breast precedes the disease of the nipple.

that cancer of the breast is practically unknown among Japanese women, and that he has never been able to trace a case of the disease among pure native Indian women in either North or South America. He asks the pertinent question : " Is it the non-wearing of corsets and the non-lacing of the body which accounts for the non-occurrence of cancer of the breast in these races ? " The answer is probably not so simple as this, but it is equally probable, from our knowledge of the almost universal association of cancer with chronic irritation of different kinds, that the squeezing of the breast by ill-fitting corsets or tight lacing, which are happily at the present day no longer the fashion, but may become so again to-morrow, is one of the factors accounting for the great frequency of the disease among civilized women. Some authorities attach great importance to this. Thus Snow remarks : " There is little doubt that pressure by the universal corset, directly on the breasts and indirectly on the pelvic organs, materially contributes to prepare the soil for future cancer in these regions." Whether this be so or not, the remedy is easy and is well worth attention.

Women should be educated to the fact that the breast is a very delicate organ, that it is particularly prone to cancer in later life, that chronic irritation and injury are almost always the forerunners of cancer, and that by being careful to avoid anything of this nature they would certainly render themselves less liable to its onset.

(2) *Cancer of the Womb*

In the womb we find indubitable evidence of the origin of cancer in chronic irritation and injury.

The most common form of cancer of the womb, that which accounts for far the majority of cases, occurs in those who have borne children. Childbirth produces injury to the womb, which is repeated again and again at each successive confinement. Wounds and tears occur which do not soundly heal. A state of chronic inflammation of the neck of the womb results, which is frequently a forerunner of cancer. It is a very significant fact that it is only women subjected through childbirth to these wounds and tears who suffer from cancer in this region.

This should not deter women from having children. That would be very reprehensible advice to give any woman. But it should force them to take notice of any sign which leads them to suspect that they have not made a complete recovery from their confinement.

These injuries generally give evidence of their presence by causing unnatural discharges. It is, therefore, obligatory on every women if, after childbirth, she suffers from any discharge, that she should place herself under medical or surgical treatment, and should not desist from it till this condition is soundly healed, and she is completely free from this symptom. Women, and especially the poor and

ignorant, in whom this form of cancer is so common, go on for years suffering from these unhealthy discharges, never seeking medical advice for an ailment which could be easily cured, and inviting by their neglect the onset of cancer. A sounder knowledge of the importance of attention to this condition, and of the disaster which its neglect frequently brings in its train, is of great moment to all women. A more rational compliance with personal hygiene would, we may confidently assert, lead to a great diminution in the liability to cancer in this region. Ignorance and neglect of an apparently harmless symptom account for the frequency of its onset here, just as ignorance and neglect of an apparently harmless symptom, as I have shown previously, account for its appalling mortality.

(3) *Cancer of the Lip*

In this region we have another very striking illustration of the origin of cancer in local irritation. I cannot do better than quote from an article by an eminent Irish surgeon which appeared in the "Practitioner" in May, 1903: "The use of the pipe is the exciting cause of lip cancer in almost every case. The disease is rarely found in non-smokers. The few cases of epithelioma (cancer) of the lip which I have seen in women were all in peasants who smoked.[1] The great bulk of the cases of this class in the Richmond Hospital come from

[1] M. Tillman found that of 77 cases of cancer of the lip only 7 were females; of these, 3 were smokers.

the more remote parts of Ireland. In these districts the short, hot clay pipe is still smoked ; while in Dublin, and in regions closer to the cities, where the briar-root pipe is in use, cancer of the lip is not nearly so common. If further evidence be necessary in this direction, it may be found in the fact that patients can nearly always tell you that the cancer has appeared on the side on which they use their pipes. Another factor to be considered is the irritation caused by broken, decayed, or irregular teeth. The freedom of women from cancer of the lip is notable. I have operated on over 350 cases, and have seen many others, and all were males except 3. These 3 were Western peasants who smoked assiduously. It is not probable that sex has any direct influence ; the reason why women are comparatively exempt is rather to be sought in the fact that few of them smoke pipes, and they are less subject to traumatic influences than men. Position in life seems to have some bearing on the liability to cancer of the lip. The disease is comparatively rare among the upper classes. This may be explained by the greater care they take of their teeth, and if a pipe be smoked, by the use of one not made of clay."

From these remarks it will be seen that one very obvious indication in the prevention of cancer of the lip lies in the avoidance, as will be explained in more detail in the next section, of the irritation caused by sharp teeth and stumps and in keeping the teeth clean. If smoking causes any persistent

soreness or irritation of the lip in a man advancing in years, and especially if it does so in one particular spot, it should be given up at once and for good.

(4) *Cancer of the Mouth and Tongue*

There can be no doubt that the frequency of cancer of the tongue and mouth could be greatly diminished by attention to what may be called the "toilette of the mouth." It is a matter of everyday observation among doctors and dentists, who frequently have occasion to look into people's mouths, how great is the neglect of the most ordinary sanitary requirements here.

It is a contrast worth noting, as illustrating the importance which the associated circumstance, chronic irritation, plays in the development of cancer, that the female breast, which, as pointed out in a previous section, is subjected to many sources of irritation, is frequently also the seat of cancer; the male breast, free from these, hardly ever. The tongue and mouth, on the other hand, which are, generally speaking, subject to much more frequent and powerful sources of irritation in men than in women, are also much more often attacked by cancer. The sources of irritation alluded to are syphilis, tobacco, alcohol, ragged and dirty teeth, and badly fitting plates. Late syphilis, which produces a state of chronic inflammation of the tongue, often accompanied by white patches (leucoplakia), is much more frequently seen in men

than in women; tobacco and alcohol,[1] in excess both of quantity and strength, reach the mouths of men to a far greater extent than those of women.

Women, as the result of an evolution along divergent lines, are far more careful of their personal appearance, and with it of their teeth, than men; at all events, one much less frequently sees in women even of the poorer classes the foul, dirty mouths that are common enough in men. Cancer of the mouth and tongue is nearly ten times more frequent in men than in women.

The educational campaign on the prevention of cancer of the mouth and tongue, applicable chiefly to men, should take its cue from the above associated circumstances. As the result of the campaign against venereal disease, which aims at the prevention, the earlier and more efficient treatment of venereal disease, and the suppression of the doctor-chemist, we may expect that a later generation will experience a considerable diminution of late syphilis of the tongue, and one factor in the production of cancer here will be thereby eliminated. With the gradual civilization of the races of mankind we are seeing, and shall continue to see, a diminution in the consumption of alcohol, and especially of the stronger

[1] The present generation of girls and young women indulge more than enough in tobacco and some in alcohol. It will be a question which the future only can determine whether they are thereby rendering themselves more liable to cancer of the mouth and tongue.

and more irritating forms of it. In regard to tobacco, its use in excess should be preached against, and the warning made public that this carries with it a definite risk of cancer. It should be particularly emphasized that if a smoker, especially in later life, finds that smoking makes his tongue and mouth sore, he should give the habit up for good. The danger of ill-fitting plates and old and useless stumps, and especially rough and sharp stumps, which rub against the tongue and cheek and constantly irritate them, should be laid particular stress upon, and the warning given that, if not removed, they carry with them a definite and very real danger of producing cancer. A visit to a dentist for a tooth that has had its day is better than a visit to a surgeon for a cancer that may have its way. Last but not least should come the educative effort against the "dirty mouth."

It will almost always be found in cases of cancer in this region that the mouth is in a foul condition. As people get older they get cavities in their teeth, and their gums generally shrink away from the latter, leaving spaces in which particles of food lodge. Here we have all the conditions most favourable for sepsis or decomposition: dead animal matter, warmth, and moisture. Decomposition naturally follows, setting up a state of chronic irritation due to filth which undoubtedly predisposes to cancer. This, too, is a source of many of the digestive troubles people suffer from in later life, and possibly, from the swallowing of this septic irritating

matter, a cause favouring the development of cancer in the stomach.

The remedy for this state of things is the customary habit of brushing the teeth, if they are brushed at all, on rising in the morning and only then. By all means let the teeth be brushed the first thing in the morning. It is a cleanly and comfortable thing to do. There is nothing to be said against it. But a very little reflection will show that it is the most useless time in the day to brush them, from the point of view of keeping the mouth clean. It entails the harbouring in the mouth of these rotting particles of food for twenty-four hours. The only practice that will keep the mouth clean, especially in advancing years, is that of brushing the teeth after each meal, thereby getting rid at once of particles of food which if present for a few hours must decompose and render the mouth foul. It should be a universal practice, and would do much to eliminate the above-mentioned sources of ill-health to their owner, as well as an annoyance to those with whom he comes in contact. It would, moreover, eliminate a factor in the production of cancer in this region. Or, if it be considered too much trouble to brush the teeth and cleanse the mouth more than once a day, then at night before going to bed is a far more rational time to do it than in the morning. The habit of picking the teeth after meals, though possibly it may not appeal to people on æsthetic grounds, and is not generally considered " good manners," is

undoubtedly a cleanly custom, and has much to recommend it from the point of view of the hygiene of the mouth.

There is no reason to doubt that cancer of the tongue and mouth is largely a preventable disease; but that its prevention can be secured in no other way than by a systematic instruction of the public in the avoidance of circumstances, most of which certainly could be avoided, and which certainly in many cases lead to the onset of this disease.

(5) *Cancer of the Skin*

There is not much to say about the prevention of cancer of the skin that has not already appeared in the previous chapter on its cure. Inasmuch as it generally starts in moles, warts, old scars, or other abnormalities of the skin, it is advisable that these should be removed, especially if they are subjected to oft-repeated irritation of any kind. This can always be done under local anæsthesia by a very simple operation, and rids their possessor for ever of the possibility of the onset of cancer in them. For instance, a wart or mole may be situated on the cheek or neck and be subject to daily irritation in shaving; or about the breast, and be constantly rubbed and squeezed by corsets; or, again, on the shoulder, and be liable to oft-repeated friction by braces and so on. Such should be removed, however innocent they appear. The coal-black mole, especially if it is elevated, should always be removed wherever situated, because it is the kind that carries

with it the greatest danger of developing into cancer. It would be unreasonable, of course, to advise all moles, warts, etc., to be removed on the off-chance of cancer occurring in them in later life, but it is reasonable to advise their removal in situations exposed to chronic irritation or injury. It is also reasonable to remove them in any situation if the patient, knowing that they are potential starting points of cancer, desires it. Cancer of the skin, with the practical application of this knowledge, is in great measure a preventable disease.

(6) *Cancer of the Stomach and Intestines*

The insidiousness of the onset of cancer in these regions, and the consequent uncertainty of the indications of its early presence to the patient, were emphasized in the last chapter. The indications for its prevention are more clear, though it must be admitted they rest on probabilities, albeit very reasonable probabilities. The gastro-intestinal tract (stomach and intestines) presents in its course several points of constriction, places where it is narrower than at others. The only irritants present in the tract are the food, the residue of the digestion of food, and various digestive juices which are poured into it for the purpose of securing its digestion. It is reasonable to suppose that these would act with the greatest vigour in the narrowest portions of the tract, where they would be temporarily held up, than in those portions where they would move along more freely. Now, it is precisely these narrower

portions which are the most frequent sites of cancer. We trace here, as elsewhere, the associated circumstance of chronic irritation with the disease.

Without stating that there is any positive evidence of the fact that hasty eating or chronic constipation contributes to the disease under notice, it is not improbable that the presence of undigested food and of the excrement of the digestion of food lodged in these regions has, by the chronic irritation it would inevitably produce, a determining influence in the onset of cancer. The importance, therefore, of attention to daily evacuation of the bowels and of the avoidance of constipation, not by repeated dosing with medicine, but by cultivating a regular habit, seems apparent. It is desirable on every sanitary ground. Its neglect is common enough at the present time. In these days of haste and hurry, people have not time for this obviously necessary requirement of health. They bolt their breakfasts, rush off to their various duties and occupations, and neglect this patent duty to their own economy. An act which should be as natural as breathing is suffered through sheer neglect to fall into abeyance ; the habit of chronic constipation is acquired in its place. To escape its inconveniences, aperient medicines are resorted to ; they are to be had in any quantity and every variety ; they make the fortunes of the manufacturing chemist ; they save a lot of time and trouble ; they themselves, in the production of their desired effect, give rise to an irritable condition of the intestinal

tract, and are in no way comparable to the natural act. In this common habit of chronic constipation, which is nearly always due to neglect and could nearly always be avoided, and in the remedies so frequently taken to overcome it, we have the fulfilment of the conditions requisite to produce chronic irritation in the bowels. Chronic irritation, we have seen, indubitably predisposes to or excites cancer.

It will be seen, therefore, how important it is, both on the ground of general health as well as on that of avoiding a not at all unlikely excitant of cancer, to pay attention to this sanitary detail. It is especially incumbent on parents, schoolmasters and mistresses, and such like, who claim by their position or on their prospectuses to be fitted to have the care of the young, and who may be presumed to be old enough and intelligent enough to know the importance of these matters, to pay particular attention to them ; and to see to it that the young under their supervision, who cannot be expected to appreciate their necessity, are adequately instructed therein. They have a paramount duty to perform here. They are as much responsible—a fact too often lost sight of—for the bodily health as for the mental training of those entrusted to their care. They are instrumental, according as they interpret their responsibility, either in sowing the seeds of future disease, or in moulding the young under their care into healthy men and women.

It is significant but not surprising that *pari passu*

with the more of artificial and the less of natural foods and drinks and methods of feeding, with the haste in eating which is part of the haste in living, with the decadence of the teeth, with the acquirement of the habit of constipation and the multitude of medicines which are swallowed to counteract it, that *pari passu* with these undesirable accompaniments of an advancing (*sic*) civilization cancer of the stomach and intestines should show a remarkable increase both among men and women. There are in these enough and to spare of circumstances calculated to produce the chronic irritation which is so closely associated with the onset of the disease.

Pre-cancerous Conditions

By this is meant that there are certain conditions in various parts of the body liable to attack by cancer which, though not in themselves actually cancer, yet are known by experience to be so frequently precursors of it, that it is advisable to get rid of them on these grounds alone, and not to give them the chance of developing into the more serious disease. Some of these have already been touched upon in the previous pages of this chapter. At the risk of repetition, the most important of them will be given here. The coal-black elevated mole was mentioned in discussing the prevention of cancer of the *skin*, and its removal wherever situated was recommended. A particularly deadly form of malignant disease not infrequently starts in this kind of mole, and it is on that account

justifiable to consider it a pre-cancerous condition and to act accordingly.

On the *lower lip* what is known as smoker's burn, i.e. a definite localized area of irritation at the exact spot where the stem of the pipe rests against the lip (for it is well known that pipe-smokers generally acquire the habit of holding the pipe in one particular position in the mouth), is a common pre-cancerous condition, the disease very frequently supervening on it. Such a burn will give rise to a feeling of soreness which cannot fail to attract the notice of the patient, and for which he should at once seek competent medical advice. The advice given him will be to remove the cause (smoking), and if the condition persists in spite of this, to have the small area of irritation removed, and thus save himself from the great likelihood—for it amounts to this—of the subsequent development of cancer in it. An ulcer or sore on the lower lip, possibly caused by a jagged tooth or ill-fitting plate, is another pre-cancerous condition here. The extraction of the tooth or the removal of the offending plate, if not followed soon by the healing of the ulcer, would call for the excision of the latter.

Cancer of the *tongue* and *mouth* once developed is such a dangerous disease, and frequently makes such rapid progress once it has started, that for many years surgeons have been endeavouring to ascertain here pre-cancerous conditions, in the hope that by removing them the onset of the more formidable disease might be avoided. So far back as

1890, Hutchinson in his "Archives of Surgery" draws attention to this matter, and Butlin later laid great stress upon it. Dr. Joseph Colt Bloodgood, of the Johns Hopkins Surgical Pathological Laboratory, Baltimore, U.S.A., in a recent monograph entitled "Cancer of the Tongue: a Preventible Disease," has very carefully analysed 160 cases of cancer of the tongue with a view of determining the order of importance of these pre-cancerous conditions and their causes. First on the list of etiological factors he places tobacco. Of the 160 cases, in only 2 was there a history of the non-use of tobacco in any form. In the few cases of the disease in women there was the history of the use of tobacco in some form, usually that of snuff by the mouth. The excess, rather than the form (e.g. pipe, cigars, cigarettes, chewing, etc.), is the striking feature in these histories, and the production by the tobacco of some definite area of irritation, with or without the appearance of a white patch (leucoplakia), in which cancer has subsequently developed. Of these 160 cases, in 41 the white patch alluded to above had been noted by the patient for years before the onset of cancer. In 27 there was a history of rough and dirty teeth or ill-fitting plates; in 14 the cancer developed apparently as a result of the white patch alone. Among those with a definite white patch (leucoplakia) there was a history of antecedent syphilis in 21 per cent. Of the remaining cases that had no white patch, 119 in number, in 47, or 40 per cent, there was a history

of dirty, ragged teeth, producing a definite area of irritation known to the patient for months or years before the onset of cancer. In 12 cases, there was a history of a definite area of irritation, probably produced from a burn from smoking or by bad teeth, known to the patient for months or years before the onset of cancer. In 43 cases the patients were aware of a definite ulcer or sore on the tongue or floor of the mouth for months before the onset of the disease. This was due to various causes, e.g. smoker's burn, chewing tobacco over the area, bad teeth, a wound such as biting the tongue. In 4 cases a wart had been present previous to the development of cancer 2 and 10 months, 1 and 2 years respectively.

The above analysis of the histories of 160 cases shows that in practically every one there was some definite local area of irritation present in the tongue or floor of the mouth prior to the onset of the disease. Sometimes it was a white patch (leucoplakia), sometimes an area of irritation without a white patch, sometimes a definite ulcer or sore, sometimes a wart. These were further also traceable to one or more definite sources, viz. excess of tobacco with or without smoker's burn, ragged and dirty teeth, ill-fitting plates, syphilis, injury to the tongue from biting it, etc. In many cases these local areas of irritation were known to the patient for months and even years before the onset of cancer in them. They are, in fact, pre-cancerous conditions, known to the patient and dependent on definite

causes, the removal of which would have enabled him to avoid the onset of the disease. If he had been educated to a knowledge of their danger and the importance of consulting a competent medical authority on their first appearance, the causes giving rise to the irritation would have been withdrawn (tobacco, ragged dirty teeth, ill-fitting plates, etc.), and if the area of irritation had not then rapidly got well he would have been advised to have it removed, and thereby avoid the possibility of the onset of cancer in it. In no region of the body is the dependence of cancer, etc., on obvious sources of irritation so evident as here ; in no region is the presence of a definite local area of irritation on which cancer subsequently supervenes (pre-cancerous condition) so well marked ; in no region is it more certain to attract the early notice of the patient ; in no region does cancer, once it has developed on one of these areas of irritation, more rapidly advance and therefore tend to become hopeless ; in no region is it therefore more important that the patient should know the significance of the pre-cancerous condition and how to act if he notices it. In considering the possibilities of dealing with this most formidable disease, there is a greater future in the hands of a public suitably educated in personally preventing its onset, and in personally taking advantage of pre-cancerous conditions as soon as they occur, than there ever probably can be in the hands of the surgeon once the disease has developed.

In the *breast* there probably exist pre-cancerous conditions, the accurate knowledge of which would be invaluable not only in forestalling the onset of cancer, but from the fact that the removal of the pre-cancerous condition would involve a far less extensive operation than that required for the extirpation of the disease itself. But it cannot be said that at present surgical opinion is sufficiently agreed as to what constitutes the pre-cancerous breast to warrant definite information in regard to it. One very eminent London specialist in diseases of the breast has described what he calls the prœmial breast, which he considers is sufficiently often followed by cancer and other pathological conditions to call for its removal as a preventive measure against cancer, and has laid down certain signs by which he considers it may be recognized. But further corroboration of these views is necessary before going beyond the advice given under the heading of " Danger Signals " ; that if a woman has a definite lump in the breast, it should be forthwith removed and its nature determined, unless the doctor is quite sure it is not cancer ; and this rule, as has been pointed out, derives additional emphasis if she is over 35 years of age. The same must be said of cancer of the *womb*. Though pre-cancerous conditions probably exist, what they are and how to recognize them is not known with sufficient accuracy to warrant any advice being given additional to that under the prevention of cancer in this region.

There is conclusive evidence of the fact that cancer of the *stomach* frequently supervenes on a chronic ulcer of this organ which may have existed and been treated medically for years. Chronic ulcer of the stomach must therefore be considered, at all events, a potential pre-cancerous condition, and if it persists and symptoms of it recur notwithstanding repeated efforts to cure it by medical means, it should be radically cured by surgical procedure, not only on account of dangers inherent in itself, but because it is a likely precursor of future cancer. By modern X-ray examination the presence of these chronic ulcers can almost always be determined.

Circumcision

All male babies should undoubtedly be circumcised. The Jews, who practise circumcision as a rite, do not suffer from cancer in this part of the body. There is no reason to suppose that if people of other religious persuasions were equally cleanly, they would not be equally exempt from cancer here. On other grounds, which have no connection with this subject, the adoption of circumcision, if not universally, at all events in all cases where indicated, is most desirable, and would certainly diminish, if not eliminate, the disease under discussion.

The Question of Infectivity

In a previous chapter the question of the infectiousness and contagiousness of cancer was alluded

to. The possibility of transferring it from one animal to another of the same species has been experimentally proved over and over again in the case of mice. There is very little, if any, evidence in the literature of cancer of its transmission from man to man. It must be clearly understood that the infectivity of cancer, if it exists at all in the generally accepted sense, is of a very low order. It is in no way comparable to that of the diseases which are generally considered infectious. Thus, although, for instance, healthy mice have been freely mixed in cages with mice suffering from cancer, according to Dr. Bashford, the Superintendent of the Imperial Cancer Research Fund, not a single case of its transference from diseased to healthy mice has been recorded. Again, notwithstanding the frequency of cancer in man, it is the rarest thing in the world to find even strong presumptive evidence of its transference from one person to another: and many of the supposed cases may be capable of some other explanation, such, for instance, as exposure to like conditions, coincidence, etc. There is, therefore, no occasion for any alarm on this score in the case of people who purpose occupying a house or room previously tenanted by a cancer-stricken patient, or who are brought into close contact with those suffering from the disease. It is, nevertheless, a sound precaution to adopt the same measures as in infectious diseases. For instance, in the case of a person suffering from cancer who has occupied a room

and has possibly died in it, it is undoubtedly a wise step to have such an apartment thoroughly disinfected previous to its tenancy by another individual. It can do no harm. It is obviously a right measure on ordinary sanitary grounds, and, if infection exists in cancer, of however low an order, its adoption is clearly indicated. So, again, any who are brought into personal contact with patients suffering from this disease should take similar precautions to those that are recommended in infectious diseases generally. These are well summed up in the Bradshaw Lecture on " Cancer and its Treatment," delivered before the Royal College of Surgeons of England in December, 1904: " It would seem most desirable that all dressings taken from cancer patients should be burnt; that linen soiled by cancerous sores should be destroyed or disinfected by boiling; that contact with cancerous ulcers, whether of the lip, tongue, breast, uterus, or other parts, should be avoided, and that common use of beds and utensils with cancerous patients should not occur." These precautions only amount to attention to commonsense principles of cleanliness, and are clearly indicated on ordinary sanitary grounds, quite apart from the question of the infectivity or the reverse of cancer.

CHAPTER XII

RADIO-THERAPY IN CANCER—ITS LIMITATIONS AND USES

AS might have been expected, countless remedies have from time to time been advocated as cures for cancer. Many of these stand condemned on the face of them, and are advertised and boomed by quacks and charlatans, whose sole object is to extract what pecuniary advantage they can from the miserable plight of their dupes. The unfortunate people who fall into the hands of these harpies become the twofold victims not only of a terrible disease but of an unscrupulous impostor, and usually discover only too late that they have been doubly fooled. It is not a case with these highwaymen of "your money or your life," but "your money and your life." Other of these remedies have been advocated quite honestly, frequently by men of high standing in the profession of medicine itself, in the conviction of their value. In most of these instances claims, which on further investigation have turned out to be altogether extravagant, have been made with no thought or intention of deception or fraud whatever.

It has been the practice for some years past in the Cancer Department of the Middlesex Hospital

to test any remedy which was not obviously a fraud and which could advance a claim, however slender, to its utility. Such remedies, only to mention a few, as the Otto-Schmidt serum, trypsin, molasses, violet leaves, Chian turpentine, cancroin, Doyen's serum, micrococcus neoformans vaccine, Coley's fluid, thyroid, and thymus extract, etc., have all had a trial. None of them has justified the claims advanced for them, and some have proved actually injurious.

An altogether different verdict must be given in the case of radio-therapy. This includes the treatment of cancer by either radium or X-rays, in the latter of which there have occurred of recent years technical developments of great importance and value. The therapeutic rays derived from either of these sources are analogous and produce similar if not identical effects on malignant tumours. Broadly, these are a selective destructive action on cancer cells, and an eventual replacement of a cancerous tumour by scar tissue. The latter serves the further purpose of diminishing the vitality and limiting the growth and extension of any cancer cells embedded in it which may have escaped destruction. Such briefly is the effect of submitting a cancerous tumour to the action of radium or X-rays. And there is no doubt that remarkable disappearances of cancerous growths have been recorded, and in some instances what is known as a clinical cure has been obtained, i.e. the disease, during the time the case has been kept under

observation, has shown no evidence of return. This, unhappily, is not the general rule. In the majority of cases, after the patient has apparently remained free of the disease for a variable time, some months or even a year or two, it returns. This means that some of the malignant cells have been unaffected or not completely destroyed by the rays and have started the disease afresh. This is the general experience. Now, the reader who has closely followed the previous pages of this book, which deals only with cancer occurring in certain definite regions in which it is possible to recognize it early and to remove it completely, will note that the claim to its curability by surgical removal[1] is founded on very different evidence to this. It is based in all cases on a 5 years' freedom from recurrence, and in Chapter VI, "The Curability of Cancer," and Chapter VIII, "The Possibilities of Cure," all the percentages of cures given conform to this standard. Now there are as yet no statistics in any degree comparable to these from the unaided employment of radio-therapy in these situations, and it is only when such statistics are forthcoming that the time will have arrived for considering radio-therapy a rival or alternative treatment to surgical removal in the ordinary run of operable cases. As a matter of fact, in the surgical clinic of the University of Frankfort the two methods have been actually put to the practical test of comparative experiment.

[1] This includes diathermy, which in some situations has proved superior to the knife.

The three-year limit of non-recurrence has been adopted. Kronig irradiated 14 cases of cancer of the breast in Stage I of Steinthal, i.e. the earliest stage in which cancer presents itself for treatment (cf. Chapter VI, page 99). Of these, only 3, or 21·4 per cent, did not recur within 3 years, i.e. were probably cured. Side by side with this result, surgical removal in the same stage has given in the hands of Anschütz and Perthes 100 and 90 per cent respectively free of recurrence, i.e. probably cured, after 3 years. And very nearly as good results have obtained when a 5 years' limit is taken. In Stage II of Steinthal, i.e. a more advanced stage but still favourable for attempt at complete surgical removal, Kronig treated 30 cases with X-ray alone. Of these, only 5, or 16·5 per cent, remained free of recurrence for 3 years. In the same stage surgical removal has effected 32·7 per cent (Anschütz) and 27·5 per cent (Perthes), or about double the number. Again, in the case of the lip, Perthes reports by irradiation, out of 17 cases 12 cures (up to the time of writing), or 70 per cent. Surgical removal affords 80 per cent. The difference is not so striking as in the breast, but even 10 per cent in dealing with human life is material and not to be ignored. These and similar experiences of the relative value of radio-therapy and surgical removal in cases favourable for the latter enforce the following important conclusion : *That every patient suffering from cancer, which occurs in a situation and at a stage favourable for complete surgical removal, should have that oppor-*

tunity offered him in the first instance. So long as we see to it that patients do not, involuntarily and in ignorance, sacrifice their lives by trying X-rays first, and by so doing lose the opportunity of complete removal at the earliest possible moment after discovery of the disease ; so long as it is conceded that in these cases radio-therapy is not a rival or alternative treatment to surgery ; so long as it is recognized that, while it has its definite rôle in the treatment of cancer, this rôle does not comprise the early case in which complete removal is probable and the expectation of cure is good, then we may freely concede that radio-therapy, as will be seen directly, has proved of great value. It is very necessary to make this reservation quite definite, and it is very necessary for the public to clearly understand it, because radio-therapy carries with it an obvious danger in that it is a far more attractive proposition and is naturally a much more tempting offer than a surgical operation ever can be. For people, in the present state of our knowledge, to try this treatment first in cases suitable for surgical removal is tantamount to deliberately forfeiting always their best chance and frequently their only chance of cure.

Having made this point perfectly clear, we may now turn to the uses of radio-therapy in cancer. They are various and important.

I. As an Alternative to Surgery

(a) *In Early Cases*

In the early and favourable operable case I have stated radio-therapy is not an alternative to surgery. But it may become so under the following exceptional conditions :—

(1) When a patient, after the position stated above has been clearly put before him and he thoroughly grasps the fact that by refusing surgical treatment he is certainly losing his best and probably his only chance of cure, deliberately declines operation. Then radio-therapy becomes the next best thing we can offer him, and in a limited number of cases the disease so treated may not return.

(2) When a patient, owing to some special circumstances such as advanced age, state of his general health, etc., is unfit to undergo the operation required, or when such operation in itself would involve an unusual risk to life.

(3) In some cases of rodent ulcer, a disease allied to cancer but different from it in the important particular that it remains throughout its course confined to its local site of origin and never disseminates itself like true cancer does, radio-therapy can undoubtedly effect a permanent cure.

(b) *In Late but still Operable Cases*

It is in such cases that radio-therapy occupies a very definite place in the treatment of cancer, and

in many of them is to be preferred to and should supplant surgery. When a man or woman applies with advanced cancer, it may be still possible technically to remove it, and as the patient is then probably in great distress and suffering he is usually quite willing to undergo any operation which holds out the smallest prospect of relief. But many operations undertaken at this stage, though possibly with the consent of the patient justifiable in that the disease left alone is inevitably fatal, frequently involve extensive mutilations, are attended with considerable risk to life, and recurrence of the disease in the near future is extremely probable. It is in these cases that radio-therapy is generally to be preferred to surgery, and this alternative treatment should be put before the patient and, in my opinion, should be recommended to him. It is true that a cure is not to be expected by either method, but by radio-therapy not only is a severe surgical operation with its attendant risks and suffering avoided, but where the two procedures have been compared the former has actually given the better results as regards prolongation of life and relief of suffering. It is just as incumbent on the surgeon, if he meets with a case of this kind, to consider the alternative possibilities of and, if indicated, to advise radio-therapy, as it is on the radiologist, if consulted in an early case, to recommend his patient at once, and without any dallying with radio-therapy, to the surgeon.

II. As an Aid to Surgery in Operable Cases

Radio-therapy may be used as an aid to surgery during an operation, after it, or before it. It has already been explained that, however favourable a case may appear for surgical removal, and however complete and skilful the operation, the surgeon can never be sure that he has entirely removed the disease. Deposits of microscopic size, which he can neither see nor feel, may remain behind, and if they do they will almost certainly lead to recurrence. That is the reason, as has been previously stated, why the surgeon is never justified in either promising a cure or in stating definitely that a case has been cured. Recognizing this, radium is frequently buried in the wound during an operation in the directions of most likely spread of the disease, with the object of destroying any cancer cells which may have escaped removal. This has been done, for instance, of recent years in the case of the breast, and the evidence so far available at the Middlesex Hospital appears to show a 10 per cent reduction in recurrences. With the same object, after operation for breast cancer, patients are frequently submitted to a course of X-ray exposure over the operated area and its neighbourhood; and it is generally, though not universally, agreed that this diminishes the chance of recurrence. Lastly, it is recommended—and good reason can be advanced for it—that patients should have a single intensive

radiation before operation. In other regions similar procedures have been adopted, the intention being to remedy any possible defect in the operation and to make assurance doubly sure. A further use of radio-therapy in this connection, and in which it has proved of value, is to make surgical removal possible in a case which was otherwise unsuitable for it. By preliminary radiation, cancer of the womb and rectum, for instance, have been reduced in extent and immobility, and have been so rendered capable of successful removal. One of the uses, therefore, of radio-therapy is as an aid to surgical operation in operable cases, and surgeons who avail themselves of every means at their disposal in the interest of their patients advantageously co-operate where indicated with the radiologist in the treatment of an operable case, either at the time of operation, before it, or after it. This close co-operation of surgeon and radiologist is already proving of value and foreshadows possibilities which neither could expect to achieve independently.

III. In Inoperable Cases, and those which have recurred after operation and are not favourable for further surgical interference, radio-therapy is of the greatest service, and is unhesitatingly recommended. It can admittedly accomplish a great deal in relief of the terminal stages of the disease. It greatly eases pain and suffering, diminishes bleeding and discharge, puts a check on the extension of the disease, and prolongs life—possibly a doubtful

benefit, but still a universal human instinct. In some instances it can do more than this, producing what is known as a clinical cure, i.e. a complete apparent disappearance of the disease, though it is not to be expected that this will be anything but temporary.

I have endeavoured in the previous pages to state the present position of radio-therapy in the treatment of cancer fairly and without prejudice. It must be remembered that it is still in the stage of evolution, that there is much yet to be learned about it, that great technical improvements in it have been made during the last few years, and that at present it is impossible to forecast what its final place may be. There is no doubt that at first extravagant claims were made for it as in the case of other cures, though with more justification ; and that the " victory of X-rays over cancer," which was loudly proclaimed by some, has had to be withdrawn. Further trial and closer acquaintance with it have modified these views, and I believe the position as I have outlined it here is subscribed to by most competent radiologists and by all those who have not permitted their enthusiasm to outrun their judgment and the hard facts of experience.

CHAPTER XIII

THE MEANS TO THE END

IN the previous pages have been set out the scope and extent of the instruction that should be given to the public, with the view, firstly, of eradicating the various fallacies that exist in regard to cancer; secondly, of assisting them on the one hand to prevent its onset, and on the other of enabling them to avail themselves of the opportunity of cure should they be attacked by it. It has been emphasized that this education should have very definite limits: that in the first place it should include only those who have reached middle life and over, except in the case of people who may be called upon to act as instructors, and in the second place that it should be confined to certain regions of the body where means of prevention are manifest, where the warnings of it, if it occur, are very definite and must obtrude themselves early on the notice of the patient, and where, in addition, if opportunity is taken of the warning, the prospect of successful treatment is hopeful. It has been shown, further, that fortunately these conditions cover some of the commonest sites of cancer, viz. the skin, larynx, and rectum in both sexes; the mouth,

tongue, lip, and testicle in men ; and the breast and womb in women. If these limitations are strictly adhered to there is then a very definite goal to aim at, and confusion will not arise from any vague notions as to what the education of the public about cancer really implies.

The intention of the present chapter is to indicate the lines along which this object may be achieved. The best methods to follow would almost certainly only be evolved as the result of experience ; but if the object and principle are conceded, eventual agreement would probably be obtained as to the best procedure.

It is, of course, essential that such a movement should have the backing of medical opinion. There should not be much difficulty in securing the support of that section of the medical profession which has to do with the treatment of cancer in accessible positions, viz. the surgeons and the experts in radiotherapy. These must be convinced—and, in fact, they are always expressing their conviction—of the enormous possibilities of improvement in treatment and of saving life, could they but secure earlier access to their patients. And the holding of convictions based on experience without the will to act upon them seems inconceivable. The American Society for the Control of Cancer was started 10 years ago by a small group of surgeons and other people, who had become convinced that in only one way could the appalling ignorance existing in

regard to this disease be dispelled, the ostrich-like policy of ignoring its dangers be overcome, and the activities of the cancer quack be countered ; and that way lay in endeavouring to educate the public about cancer and thus providing them with a means of avoiding its pitfalls and assisting in the saving of their own lives. This Society has in the short space of 10 years become one of the most powerful public health agencies in the world. It has extended its activities to Canada, and has branches in nearly every state and province on the American continent north of Mexico. One has only to look at the names of its Advisory Committee to see that it has the backing of the most eminent medical opinion of the New World. It commands the ready assistance of the Red Cross Society, the ministries of religion, and of the departments of Public Health in the various areas in which it is functioning. It has the instructed and whole-hearted support of the public Press, which readily supplies space to publish articles dealing with the subject. Its avowed object is education of the public in the prevention of cancer, where it is preventable, and in the means of availing themselves of the opportunity of cure where it is curable. With the assistance of the various subsidiary agencies mentioned above it carries out its campaign through the medium of the medical profession. It arranges for and provides speakers to address public meetings on the educational aspect of the cancer question.

It issues various pamphlets for distribution on the same subject. It has organized what is known as "Cancer Weeks," during which, by a "mass attack" of all its forces, public attention cannot fail to be riveted on its objects and propaganda, and the information it desires to give is broadcasted far and wide. In 1922, during this week in the United States and Canada, half a million people heard lectures and five million pieces of literature were distributed. Such are briefly the main outlines of its policy and of the procedure to give effect to it. As the figures above show, it has at present only touched the fringe of its ultimate objective. What effect is this campaign of publicity producing? Some instructive individual records have been published. Dr. A. Primrose, C.B., M.B., C.M., Professor of Clinical Surgery, University of Toronto, in a Canadian Medical Association Journal, March, 1923, says: "There can be no doubt of the fact that patients suffering from cancer are brought under treatment at an earlier stage than formerly. Recently I read a paper upon cancer of the breast, and had occasion to compare my statistics published in a paper 10 years ago with those compiled for my cases of the last decade.[1] The comparative study showed a very marked improvement in this regard in my recent series as compared with the former series of cases. This is indicated in the following table:—

[1] The American Society for the Control of Cancer has, as stated above, been in existence for the past 10 years.

AVERAGE DURATION OF DISEASE AT TIME OF OPERATION

	Old Series.	New Series.
Malignant growths (i.e. cancer). Average duration .	14.375 months	12.75 months
Those who came to operation under 1 year . .	54.5%	76.8%
Those who came to operation under 6 months .	35.4%	53.6%
Those who came to operation under 3 months .	19%	37.5%
Those who came to operation 1 month, and under 1 month, from initial symptoms . . .	8.4%	27%

He concludes: "To-day we are fighting the plague of cancer. The most important piece of strategy in that fight to-day is the education of the public, in order that individual cases may be brought early for professional advice. This we feel assured will prove the most effective means of saving life and ameliorating suffering in the unfortunate victims of this disease." This is exactly what I urged no less than 18 years ago in my book "The Control of a Scourge; or, How Cancer is Curable." A perusal of the above table shows what education has done in the individual experience of Dr. Primrose. It shows equally clearly how much still remains to be done before cancer of the breast in women is treated really early.

Dr. Joseph Colt Bloodgood, of the Johns Hopkins University, Baltimore, U.S.A., in a paper entitled "What Every Doctor Should Know About Cancer,"

read before a General Session of the State Medical Association of Texas, El Paso, May 10th, 1922, in reference to cancer of the tongue, says: "In the first decade of the life of the Johns Hopkins Clinic up to 1900 only 1 man (3 per cent of the total) came to the clinic with a lesion of the tongue that was not cancer, and only 1 (3 per cent) with an early cancer. During that period 13 (48 per cent) were advanced, and only 5 per cent were cured; 44 per cent were hopeless. In the last decade (since 1920), to the time of the publication in October, 1921, 19 (55 per cent) came under my observation with lesions that were not cancer; 9 (23 per cent) came with early cancer, with the probability of a cure of at least 70 per cent; only 3 (11 per cent) were advanced cancer, with the probability of a cure in only 10 per cent; and only 3 (11 per cent) were hopeless. This improvement was entirely accomplished by publicity. Since the publication of this article, the number of individuals which have come under my observation with lesions of the tongue that were not cancer has reached almost 75 per cent; while those in the early stage of cancer have amounted to almost 40 per cent.

"The same is true in regard to lesions of the breast. In a paper recently published, 'Benign Lesions of the Female Breast for which Operation is not Indicated,' I record the fact that in the last 100 women examined by me there was no indication for operation in 50 per cent. They came under observation either because of pain, or because they

felt a lump which careful examination found to be indefinite, or because of discharge from the nipple, or because of other conditions of the breast which have no relation to cancer. These are all carefully described in that article. In the remaining 50 women who had definite lumps, in over one-half the lump was not cancer, and of those in which the lump was cancer, the glands in the axilla showed no metastasis. Their chances of a cure are 70 per cent. When the glands are involved the chances are reduced to 20 per cent. Contrast this with the experience of the first 10 years of the Johns Hopkins Clinic up to 1900—rarely (less than 2 per cent) did women consult this clinic for indefinite lesions of the breast. In fully 98 per cent there was a definite lump of long duration and fully 98 per cent were cancer, and in over 90 per cent the glands were involved, with the probability of a cure in 20 per cent instead of 70 per cent when the glands are not involved."

The greatly increased number of people in both series quoted (tongue and breast) applying who had not got cancer brings out more than anything the value of the educative effort. The aim is to bring every man after middle life with any lesion of the tongue lasting more than a fortnight to the expert to know whether it is cancer or not; and every woman with a lump in the breast as soon as she finds it with the same object. It is only in this way that cancer can be caught early. If months are wasted, either by the doctor or the patient, in

waiting to discover whether it turns out to be cancer or not, it will always be caught late.

The above are individual experiences. They are, of course, a drop in the ocean. They are nevertheless straws showing which way the wind is blowing, and furnish encouragement to redoubled effort. In this connection, Dr. George A. Soper, Managing Director of the Society for the Control of Cancer, writes under date December 23rd, 1923, in answer to a question from me on the subject: "Figures are not available to show that the cancer campaign has resulted in people applying earlier to the physician or surgeon than was the case before that campaign was started, for the reason that accurate observations were not kept 10 years ago; nor are they often recorded to-day in sufficient number and with enough definiteness to cover this point. The best we can do is to record opinions. In the absence of evidence, these are not to be neglected. We have it from many sources that patients are coming at an earlier stage than formerly."

As far as statistics show, there does not appear to have been any appreciable diminution of the death-rate from cancer as the result of the Society's propaganda. But not much reliance can be placed on evidence from figures at this stage. First of all, the time the Society has been functioning is obviously too short, and the educative effort is at present only in its infancy and very limited in its scope. Again, all figures go to show that the disease itself is increasing in America as in other

civilized countries, and apparently in some localities, at all events, at an alarming rate. If this is so, the increase may be sufficient to counterbalance or even overtake any favourable figures on the Society's side of the ledger. So that, in spite of an actual saving of lives as a result of the educative campaign, there may be no apparent improvement in the death-rate. Meanwhile one matter has been put to the test, which is of great importance because it constitutes the only conceivable objection to an educative campaign against the disease—the production of cancerophobia. This has been fully considered in a previous chapter (cf. Chapter IX, page 155). Dr. Soper writes me under date December 23rd, 1923, in answer to a direct question from me on this point: "There are no signs whatever that our campaign has produced any unreasonable fear of cancer or other objectionable features. We have been careful to avoid arousing fear. We speak of our doctrines as a 'message of hope.' We do not describe the horrors of cancer orally or by the printed word." Precisely. As I have stated previously, this question of cancerophobia all depends on what it is proposed to teach the public and the manner in which the instruction is to be given. If judiciously handled, there is nothing in it. If any criticism is warranted on the information the Society provides in its pamphlets, it is that it is needlessly elaborate and covers too wide a field. This is especially noticeable in its handbook for the lay reader, "What Everyone Should Know About

Cancer." The public would more easily grasp fewer and simpler facts, and more fruitful results would, in my opinion, be likely to follow concentration on key positions from an educational point of view, viz. the skin, larynx, and rectum in both sexes; the mouth, tongue, and lip in men; and the breast and womb in women. Then, again, its educative effort is not confined to those of middle age and over. For reasons stated previously I think it should be. Lastly, it encourages, for some situations, periodic examinations of all healthy adults. Whether civilized people will eventually come to this as a measure of preventive medicine for cancer as well as for other diseases, and whether their mental attitude towards disease will become so altered that they will think no more about it than buttoning their boots, I do not venture to say. But in our present stage of psychological evolution I cannot help thinking that we are still in the age of "sufficient unto the day is the evil thereof," and that the less people who are in health think about their health the better. With these few exceptions, the lines along which the Society is working appear to be sound enough. I have devoted some space to the American Society and its work because I believe it is the only society of the kind which is working on a national basis, and if other countries follow suit they will be bound to adopt the same principles, with possibly a modification of procedure to suit the psychology of their own people.

If an educational campaign is contemplated in

this country, the first question that arises is, whom do we propose to endeavour to educate ? the next is, to what extent do we propose to educate them ? and the third is, what machinery should be used for the purpose ? The first two have been very carefully considered and answered in the previous pages of this book. As regards the third, it appears to me that no better machinery could be employed than the Public Health Departments of the various Local Authorities, acting under the direction of the Ministry of Health. This should involve, in the first instance, a public cancer service, analogous to the services for tuberculosis and venereal disease, having as its set purpose the employment and improvement of every means we possess to-day for combating cancer, and amongst these education of the public in certain facts, set out in these pages, should be the dominant feature, with the view both of prevention and cure. The recent circular (426) of the Ministry of Health on cancer does not hold out much hope of this at present, though I must say the reasons it advances are not convincing. It states : " Even if such a service were considered desirable," etc. Well ! If it is not considered desirable, or some other educative effort is not considered desirable, it is simply an admission that scores of lives must continue to be sacrificed that undoubtedly could be saved, unless the opponents of education are ready with some alternative suggestion. Of this they give no sign. The circular continues : " Even if such a service were considered

desirable, it would be out of the question until other matters, such as the improvement of undergraduate and post-graduate medical education in cancer diagnosis and treatment have been further developed." In the situations of the disease dealt with in this book there is no likelihood of any improvement in diagnosis, because the means of diagnosis are taught to every student and are known to every medical man, and are not, with rare exceptions, at all uncertain. Thus in cancer of the breast it is not at all likely that the means of diagnosis will be further developed. Waiting until the diagnosis is clinically sure is admitted to be disastrous and the worst of all follies, and such instruction would not be given to any student of medicine by any competent teacher. It is perfectly well recognized that, to put it at its lowest, certainly in every tumour of the breast of a woman over 35 years of age, unless the medical man can say with absolute certainty that it is not cancer, it is his business to advise its removal and the determination of its nature by microscopical examination. Further procedure depends upon the finding as to whether it is malignant or not. In cancer of the womb it is quite well recognized and taught that irregular bleeding and discharges[1] occurring in any woman about the same age are a paramount indication for an immediate examination with the view of excluding or not malignancy. The confirmation or not

[1] The signs are given in detail in the chapter on "Danger Signals."

of the diagnosis rests with the pathologist, is very seldom uncertain, and the procedure, as in the case of the breast, depends upon the finding.

In cancer of the mouth, lip, and tongue, the diagnosis, if uncertain by sight or touch, can practically always be determined by a similar procedure, and the teaching is that the diagnosis should be arrived at without any delay. The same holds good with regard to the skin, rectum, and larynx, which are the only other situations dealt with in this book.

In cancer of the stomach and intestines it is admitted (cf. Chapter X, page 189) that the diagnosis clinically is uncertain and often difficult, and the same ready means of confirmation are not available. But the teaching is the same—to determine the presence or not if possible, and as soon as possible, of malignant disease, and for this purpose modern X-ray and other laboratory methods are very helpful and frequently conclusive. So that to wait for " improvement in undergraduate and post-graduate medical education in cancer diagnosis and treatment " is to wait for what we have already got. I quite admit there is scope for more impressive education, both undergraduate and post-graduate, in the application of the means of diagnosis and treatment we already possess. Thus, as I pointed out nearly 20 years ago in " The Control of a Scourge," and repeat here word for word :—

" In surgical textbooks and lectures to medical students more stress might, with advantage, be

laid on the general absence of typical clinical symptoms and signs of cancer if it is seen early enough; on the conclusiveness of the evidence that cancer in the first instance is a local disease; on the rapidity with which it ceases to become a local disease by its centrifugal spread from its site of origin; on the inadmissibility of any delay, however short, whatever pressure is brought to bear on the medical man by the patient, who can be no judge in the matter, and is ignorant of the abyss on which he stands; on the paramount necessity of urging at once, in every case in which there is any doubt, the clearing up of that doubt, where it is possible, by expert microscopical examination or otherwise, and not waiting until the diagnosis clears itself clinically; on the hopefulness of treatment, if undertaken early enough; on the grave responsibility, therefore, which rests on the medical attendant; lastly, on his duty of impressing on his patients at all times and in all seasons the truth of the curability of early cancer. The dogma of the incurability, of the hopelessness, of cancer has been firmly rooted in the medical mind for all ages. The doctrine of the possibility of its cure by removal has been the growth of only a few years. The substitution of the latter for the former belief will require a pressing effort on the part of all those who, whether by their writing or teaching, are responsible for the education of coming generations of medical men in this important matter."

There is scope in the same direction as regards

the post-graduate, though obviously this should not be so if the undergraduate education were as thorough as it should be. Many, but not all, medical men seem to be infected with the same pessimism in regard to cancer that possesses the public. They have seen so many patients eventually die of it, whether without or after operation, that they have come to regard it with well-nigh the same hopelessness as the public. They seem slow to grasp the fact that nearly every case of cancer operated upon is advanced cancer, and no surgeon has ever claimed to obtain anything better than a modicum of cures in this stage of the disease. They have got to be roused to the realization of the fact that the educational campaign is an attempt to reverse *in toto* this state of affairs to which they have become so long accustomed. They have got to be roused to the fact that they have themselves a major part to play in this campaign, first of all by seeing to it that no diagnosis of cancer is ever left in doubt a single day in any situation where it is diagnosable and removable ; and, secondly, by spreading among their patients the knowledge of such facts about cancer as it is vital for them to know. But all this is only part of the educational campaign, and would doubtless be given due weight in any programme of procedure. Post-graduate lectures on these lines could easily be arranged by Local Authorities, and are, in fact, recommended in the Ministry's circular among the procedures these authorities may adopt. But this is leaving the matter

over much to chance, whereas it should come as a definite direction from the Ministry. The same may be said of the other recommendations, no doubt sound enough in themselves, such as to improve facilities for pathological examinations and arrange locally for the education of the public. There is no doubt that facilities for pathological examinations should be provided, and every medical man should be able to get a competent pathological report on any case of suspected cancer requiring it.

Nobody reading the Ministry's circular can fail to be struck by the fact that it is a half-hearted affair, and I fear very little will be done locally as the result of it. The Ministry seems afraid to grasp the nettle. What is required, and what Local Authorities are looking for, is a decided and intelligible lead, and I believe this will only come after the establishment of a public cancer service, with the very definite aim of making the most of our present means of dealing with this formidable disease, and not resting content till, at all events, we see what comes of it. It is no use waiting for other means. It lies with each generation to make the most of the knowledge it possesses during its lifetime, not to say, because such knowledge is imperfect and will not satisfy all our needs, or even half our needs, we must wait for something better. Yet that is precisely what we are doing about cancer. In many situations we are well aware that whatever we did, with our present means of dealing with it, would be useless. That is no reason why, in a few

selected situations[1] in which its cure has been proved to be possible by the means at present available to us, we should not concentrate our efforts on these situations and explore every avenue which holds out any prospect of increasing the number of these cures. Even if some other and more certain and more satisfactory cure for cancer were discovered to-morrow, it is not at all likely that it would be efficacious in the advanced stages of the disease in which many of our patients present themselves to us to-day. Nor is it by any means certain that if the cause of cancer were discovered there would be anything better to offer for its treatment than what we have to offer to-day. The satisfactory and certain treatment of many diseases has by no means kept pace with the discovery of their cause. We should make the best of any treatment we possess, whatever its shortcomings : always striving whole-heartedly to improve it, until we find a better.

It is my firm opinion that cancer in the situations I have mentioned should be made a notifiable disease, but for quite other reasons than those for which diseases are generally made so. The usual reasons for notifying diseases is that they may be detected early because they are infectious and that suitable means may be taken for the protection not of the patient but of other people. The reason I would advocate the notification of cancer in the situations I have dealt with in the previous pages

[1] And these situations, as has been pointed out over and over again, are very common sites of cancer.

is that they may be detected early because they are curable, and that suitable means may be taken to protect the patients themselves. There is no doubt that the necessity for notification would concentrate the attention of the medical attendant on the necessity for early diagnosis; and early diagnosis is what we want in cancer because it is what we have not got, and *it* only means the possibility of cure. The medical attendant's first thought on seeing a doubtful case in a curable situation would be: "If this is cancer, I have to notify it. I must therefore find out at once if it is cancer or not." That, and no other, is exactly the attitude which we want fixed in the mind of the medical profession in regard to this disease in removable situations.

Now, to go a step beyond the medical profession, whom are the next class we should direct our attention to? Obviously nurses and midwives. Below is what I wrote nearly 20 years ago. There is nothing to add to it except that State Registration of Nurses has been established, and the syllabus of subjects required for a proficiency certificate in nursing is determined by the College of Nursing. A stroke of the pen is all that is necessary, therefore, to include a few simple facts about cancer in the syllabus, and make a knowledge of them compulsory. By this simple procedure a host of women would be annually turned out into the world who would be equipped with knowledge invaluable to the community, and which they would have undoubted opportunities of using with advantage to it.

As things are, instances have occurred to me of nurses themselves applying with advanced cancer, with no notion that there was anything hopeful to be done for it if they had applied earlier; also of patients who have consulted nurses, and received from them advice that spelled disaster. This is what I wrote in 1906:—

"All nurses are required, previous to obtaining their qualification to practise, to attend courses of lectures, and to pass examinations on various subjects in connection with their profession. Cancer is not one of them. It should be. Instruction in the early signs of cancer, in the doctrine of its curability, in the duty to urge patients without delay to seek skilled advice, should form part of the curriculum of every nurse. People, and especially women, will often mention an early sign to a nurse, while they would hesitate from various motives to consult a medical man. A woman will frequently mention to a nurse a lump in her breast, an irregular bleeding. The nurse should know at once the importance of it, what it probably or possibly means. She should be in a position to urge her without a moment's delay to consult a medical man; to see that she goes; to tell her the disease is probably or possibly cancer, however well she feels, and though she is suffering no pain; to tell her that, if she does not delay, it is curable. As too frequently happens now, the patient is told 'Perhaps the lump will disperse,' or 'It is probably only the change of life.' Time is wasted; the oppor-

tunity goes ; the life is lost. It is my contention that all nurses, as part of their education, should be required to know as much at least about cancer as is contained in the pages of this book. It should form part of every nurse's armamentarium before she is turned loose on the public. It is not much : only a few simple facts, the significance of which, however, cannot be overestimated. With the possession of such knowledge, she would be equipped to take her place in the crusade against cancer, to act as a scout in the medical army. She would be on the look out for cancer, and, should the opportunity arise, she would be in a position to render invaluable aid, possibly to save a life."

Then there are the midwives. Here, again, is what I wrote in 1906. It is now 1924 :—

" The new Midwives Act creates in the place of the untrained, ignorant, and dirty Gamp, hitherto available for the poor in their hour of trial, a class of highly educated women, well-equipped in every way to minister to their needs. It must be of incalculable benefit to them in the future. It must save them from untold dangers. The Act in truth creates for a particular purpose a new class of medical practitioners. It is certain that these practitioners will be consulted again and again by the very poor on matters quite unconnected with their calling—on early cancer among others. The very poor and ignorant are precisely the most difficult of all to get at. All those, therefore, higher in the social scale, who are likely to come in contact

with them in any capacity, professional or otherwise (but especially professionally, as they will be most often consulted), should have as part of their medical equipment as much as is contained in this book about cancer; not with the view, be it remembered, of posing as doctors themselves and airing a pretentious opinion, but with the sole object, because they know the significance of these things themselves, of being in a position to urge these poor ignorant creatures without delay to hospital; to see to it that they go; not to allow them to miss the golden opportunity of saving their lives. A full and searching knowledge of these facts should form part of the education of every midwife, *without which she should not be granted her certificate to practise.*"

Since 1906 two leaflets have been issued by the Central Midwives Board, one on cancer of the womb in 1908, and another on cancer of the breast in 1916. They are admirable, and it is stated that they may be distributed to the laity as well as to midwives. But this kind of information given to midwives is a very different affair from requiring a knowledge of the facts contained in the leaflets before they are granted their certificates to practise; in other words, of including it in their syllabus. In the former case they may acquire it or not, as they please; in the latter they would have to acquire it. The Ministry's circular (426) states in a footnote: "The Central Midwives Board issues an instructional note on cancer to all midwives on registration, and includes

questions on cancer in women in their examination for certificates." If this is so, it is satisfactory to know that what I urged in 1906 has been adopted even in 1924. Better late than never. But I have the syllabus of the Central Midwives Board for 1924, and I can find nothing about cancer of the womb and breast being included in it, or a knowledge of them being requisite to obtaining a certificate. The only allusion to cancer is in the above-mentioned leaflets. By these means we should arm all those who are brought within touch of the general public, in a professional capacity, with the knowledge which is power. The very fact that acquaintance with this subject, outside the routine of their ordinary professional requirements, was compulsory would make them alert, on the look out for cancer ; would invest them with a sense of their responsibility in this matter.

But we should not stop here. There are others who are constantly in touch with the poor and ignorant—health visitors, Victoria nurses, clergymen, clergymen's wives, district visitors, *et hoc genus omne*. While we could not make knowledge on their part compulsory (except, possibly, in the case of health visitors, who are officials of the Local Authorities), Health Committees could easily arrange for periodical lectures on the subject, and if they were suitably advertised, and Medical Officers of Health were keen and energetic, there is no doubt that such people could be roped in, and would form valuable recruits for the army of workers in the

educational campaign against cancer. These lectures should include all who are brought in any capacity into close relationship with the uneducated classes. They might be extended to include any who are interested in the subject. Further, lectures could be arranged for any clubs, lodges, societies, etc., which might wish to have them. Once set the ball rolling, and there would be no lack of these. At such meetings suitable leaflets could be distributed bearing on the subject. The public is becoming interested. A short while ago I was invited to address the Portsmouth Rotary Club. I chose as my subject the title of this book, "Cancer and the Public." I was diffident as to how it would be received. Quite unnecessarily so. It was listened to with unusual interest and attention; so much so that I was invited to address them again on the same subject as soon as was convenient. As the result of it, several letters appeared in the local Press, the gist of all of which was that if the medical profession had any information to give the public which might be of value to them, they were only too anxious to have it. No note of any dread of hearing about cancer was sounded.

Considerable discrimination would have to be exercised in the selection of speakers, and probably it would be necessary to have a panel of trained men or women for this purpose: people who could put their medical ideas into intelligible and popular language and would be careful not to alarm their audiences, but convey to them a message of hope.

It would never do to employ for this purpose people who might get up and say anything, however tactless and objectionable. They might easily do more harm than good. Equal care would be necessary in the preparation of the leaflets, which should convey their meaning in a simple, intelligible, and hopeful manner, free from any allusion to the horrors of cancer, and should receive the sanction of some competent authority before distribution. All of this propaganda could be carried out quite easily and at no great expense by the Health Departments of the Local Authorities. A Central Bureau of Education at the Ministry should direct and control their activities and keep them within proper limits.

A further means of education which should be considered is the publication in the local Press at intervals, say once a week or once a month, of a short summary of cancer and its danger signals in the situations I have mentioned, with information of how to act and what to do on the appearance of any of them. This was the method strongly urged by Winter, of Königsberg, in regard to cancer of the womb in women, so long ago as 1903, and his reasons for doing so are cogently given on page 150 and need not be repeated here. If judiciously stated, it appears to me to be a most valuable method of propaganda. It would very likely bring some people to the doctor who had not got cancer ; but what harm would that do ? To send them away with the confident assurance that they had not got it or anything else they need worry about would

surely not disturb their peace of mind ; on the contrary, it would certainly relieve them of anxiety. On the other hand, it would make it possible for all who cared to heed to seize the one and only opportunity of saving their lives should they be attacked by it.

I give here the leaflet which has been distributed by the Health Department of the Portsmouth Town Council for the last 10 years, and which was published from time to time in the local Press. During the period of its publication, certainly, cases of early cancer applied at our hospital as the result of it, as well as others who thought they might have cancer and had not got it. During the war, when owing to my military duties I was obliged to be absent from the Council, it was discontinued on the ground of economy ! The advertisement cost was £20 a year ! This is the kind of ignorance and prejudice one has to contend with.

BOROUGH OF PORTSMOUTH

CANCER

Special Notice to the Public

The following Leaflet is issued by the Portsmouth Health Committee, because so many persons die from Cancer whose lives could be saved if they acted upon the advice here offered.

The importance of this subject to the Public is shown by the fact that of all persons over 45 years of age, one in ten dies from Cancer.

Issued by the Health Department, Portsmouth

CANCER

It is vitally important that the following facts about Cancer should be known.

It has been brought to the notice of the Health Committee that of the number of persons who die each year from Cancer many could have been cured if they had applied earlier for medical advice. On questioning patients as to why they did not apply to a doctor earlier, the reason almost invariably given is that as the early symptoms were unaccompanied by pain, it was not thought that anything serious was the matter.

In order therefore to call the attention of the public to the significance of certain symptoms and conditions, and to the vital importance of acting promptly on the occurrence of these, it has been decided to make the following facts public.

The only cure for Cancer, at present known, is its early and complete removal. Cancer, if removed early, has been proved conclusively to be a curable disease. If neglected, and not removed in its earliest stages, it is practically invariably fatal. The paramount importance of its early recognition and early removal is therefore evident. For this purpose the assistance both of the public and the medical profession is requisite ; and a grave responsibility rests on both. It is only by their mutual co-operation that the ravages of this terrible disease can be lessened. The following information should be of vital assistance to the public. It is no exaggeration

to say that, if acted upon, the result would be the saving annually of many hundreds of lives, which at present are inevitably lost.

1.—Cancer, in its early and curable stage, gives rise to no pain or symptom of ill-health whatever.

2.—Nevertheless, in its commonest situations, the signs of it in its early stage are conspicuously manifest. To witness:

3.—In case of any swelling occurring in the breast of a woman after 40 years of age, a medical man should at once be consulted. A large proportion of such swellings are Cancer.

4.—Any bleeding, however trivial, occurring *after* the change of life means almost invariably Cancer, and Cancer which is then curable. If neglected till pain occurs, it means Cancer which is almost always incurable.

5.—Any irregular bleeding occurring at the change of life should invariably be submitted to a doctor's investigation. It is not the natural method of the onset of the change of life, and in a large number of cases means commencing Cancer.

6.—Any wart or sore occurring spontaneously on the lower lip in a man over 45 years of age is almost certainly Cancer. If removed at once the cure is certain, if neglected the result is inevitably fatal.

7.—Any sore or swelling occurring on the tongue or inside of the mouth in a man after 45 years of

age should be submitted to investigation without a moment's delay, and the decision at once arrived at by an expert microscopical examination as to whether it is Cancer or not. A very large proportion of such sores or swellings occurring at this time of life are Cancer, and if neglected for only a few weeks the result is almost inevitably fatal. If removed at once the prospect of cure is good.

8.—Any bleeding occurring from the bowels after 45 years of age, commonly supposed by the public to be " piles," should be submitted to investigation at once. A large proportion of such cases are Cancer, which at this stage is perfectly curable.

9.—When warts, moles, or other growths on the skin are exposed to constant irritation they should be immediately removed. A large number of them, if neglected, terminate in Cancer.

10.—Avoid irritation of the tongue and cheeks by broken jagged teeth, and of the lower lip by clay pipes. Many of these irritations, if neglected, terminate in Cancer.

11.—Although there is no evidence that Cancer is communicable under ordinary circumstances it is desirable that rooms occupied by a person suffering from Cancer should be cleaned and disinfected from time to time.

HEALTH DEPARTMENT,
TOWN HALL, PORTSMOUTH.
January, 1914.

It may appear to some that this method of propaganda goes too far, and that the publication of these matters in the lay Press is open to objection. But it must be remembered that the public has to be got at somehow, and that something more than lectures, leaflets, etc., will be required to accomplish this very difficult task. Besides, advertisement of quack remedies for cancer, which are obviously to every medical man the grossest of frauds, appear daily in the newspapers, and, if for no other purpose than to counteract the effect of these, the publication of what is known about cancer and what can be done for it is justified. The American Society for the Control of Cancer has no doubt recognized the great practical difficulties in the way of getting the requisite knowledge down to the people and impressing them sufficiently and in sufficient numbers with it. Hence their institution of recent years of an annual Cancer Week in which a kind of mass attack is made against the disease, and all kinds of impressionist methods are adopted with the view of stirring up interest in their campaign and of broadcasting their information. It is a captivating idea, very thorough and downright, typically American, but possibly not so suitable to other peoples. I refrain from expressing an opinion on its adaptability to our own people, but it certainly merits careful consideration.

I have in the previous pages briefly outlined an educational campaign against cancer. As I said

before, we should have to feel our way, and no doubt other and better methods would unfold themselves as we proceeded. We should eventually arrive at the best. My object in writing this book is the same as it was when I wrote " The Control of a Scourge " in 1906. It is to draw attention to the educational aspect of the cancer problem ; to brush away former errors ; to show that cancer is capable of being dealt with successfully by surgical operation at the present time, and that it is the only method we possess of treating it hopefully ; but that the very condition of success lies in that knowledge on the part of its victims which will enable them to avoid delay in seeking advice. My purpose has been to demonstrate that until surgeons are enabled to come face to face with cancer in its earliest beginnings, its treatment by operation must remain generally ineffectual, only exceptionally curative ; that education is essential to and must precede successful treatment ; that as long as people apply as they do now for the first time with advanced cancer, so long will the results of its treatment spell failure.

The position as it exists to-day has been clearly revealed. To quote a famous phrase, " We are taking it lying down." This deadly monster is allowed to stalk unchallenged through the land. He is permitted to lay a fatal grip on his all-unconscious victims ; to establish himself by stealth securely in the citadel ; to seize all the advantageous positions ; to post his ambushes where he

listeth, without let or hindrance. The surgeon is then, and only then, called upon to turn him out. We must endeavour to reverse this order of things. It was the maxim of the greatest soldier who ever lived, that attack was the surest means of defence, that the most effectual method of waging a successful campaign was to carry the war into the enemy's country. That should be our maxim in fighting cancer. We must take the offensive against our foe, and we must take this offensive by supplying the public with the information which will enable them to seize the only opportunity of saving their lives should they become the victims of cancer.

Whenever the cause of cancer is discovered, whether owing to the co-ordinated effort of the British Empire or some other cancer campaign, or, as seems more likely, because it is the history of all the great discoveries of the world, owing to the genius of some individual explorer, it will be found that, while it has been held in such dread as to forbid almost the mention of the word, while any acquaintance with it has been shunned as with the Devil himself, the signpost was pointing all the time the way to a cure in many of its situations. That way lay in a personal knowledge and a personal effort on the part of its unfortunate victim, who very frequently holds his life in his own hands, and more often than not is the arbiter of his own fate.

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